CHINA.

IMPERIAL MARITIME CUSTOMS.

II.—SPECIAL SERIES: No. 2.

MEDICAL REPORTS,

FOR THE HALF-YEAR ENDED 30TH SEPTEMBER 1896.

52nd Issue.

PUBLISHED BY ORDER OF

The Inspector General of Customs.

SHANGHAI:

PUBLISHED AT THE STATISTICAL DEPARTMENT OF THE INSPECTORATE GENERAL OF CUSTOMS,

AND SOLD BY

KELLY & WALSH, LIMITED: SHANGHAI, HONGKONG, YOKOHAMA, AND SINGAPORE.

LONDON: P. S. KING & SON, 12 AND 14, KING STREET, WESTMINSTER, S.W.

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National Oceanic and Atmospheric Administration

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December 20, 2000

INSPECTOR GENERAL'S CIRCULAR No. 19 OF 1870.

INSPECTORATE GENERAL OF CUSTOMS,

PEKING, 31*st December* 1870.

SIR,

1.—IT has been suggested to me that it would be well to take advantage of the circumstances in which the Customs Establishment is placed, to procure information with regard to disease amongst foreigners and natives in China; and I have, in consequence, come to the resolution of publishing half-yearly in collected form all that may be obtainable. If carried out to the extent hoped for, the scheme may prove highly useful to the medical profession both in China and at home, and to the public generally. I therefore look with confidence to the co-operation of the Customs Medical Officer at your port, and rely on his assisting me in this matter by framing a half-yearly report containing the result of his observations at.....upon the local peculiarities of disease, and upon diseases rarely or never encountered out of China. The facts brought forward and the opinions expressed will be arranged and published either with or without the name of the physician responsible for them, just as he may desire.

2.—The suggestions of the Customs Medical Officers at the various ports as to the points which it would be well to have especially elucidated, will be of great value in the framing of a form which will save trouble to those members of the medical profession, whether connected with the Customs or not, who will join in carrying out the plan proposed. Meanwhile I would particularly invite attention to—

a.—The general health of.....during the period reported on; the death rate amongst foreigners; and, as far as possible, a classification of the causes of death.

b.—Diseases prevalent at.....

c.—General type of disease; peculiarities and complications encountered; special treatment demanded.

d.—Relation of disease to { Season. / Alteration in local conditions—such as drainage, etc. / Alteration in climatic conditions. }

e.—Peculiar diseases; especially leprosy.

f.—Epidemics { Absence or presence. / Causes. / Course and treatment. / Fatality. }

Other points, of a general or special kind, will naturally suggest themselves to medical men; what I have above called attention to will serve to fix the general scope of the undertaking.

* * * * *

3.—Considering the number of places at which the Customs Inspectorate has established offices, the thousands of miles north and south and east and west over which these offices are scattered, the varieties of climate, and the peculiar conditions to which, under such different circumstances, life and health are subjected, I believe the Inspectorate, aided by its Medical Officers, can do good service in the general interest in the direction indicated; and, as already stated, I rely with confidence on the support and assistance of the Medical Officer at each port in the furtherance and perfecting of this scheme. You will hand a copy of this Circular to Dr. ....., and request him, in my name, to hand to you in future, for transmission to myself, half-yearly Reports of the kind required, for the half-years ending 31st March and 30th September—that is, for the Winter and Summer seasons.

4.— * * * * *

I am, etc.,

(Signed) ROBERT HART,
I. G.

THE COMMISSIONERS OF CUSTOMS,—*Newchwang*, *Shanghai*, *Tientsin*, *Ningpo*, *Chefoo*, *Foochow*, *Hankow*, *Amoy*, *Kiukiang*, *Swatow*, and *Chinkiang*, *Canton*.

TABLE OF CONTENTS.

The Contributors to this Volume are:—

C. C. DE BURGH DALY, M.B., B.CH. ..... Newchwang.

E. W. VON TUNZELMANN, M.B., M.R.C.S. ..... Chefoo.

JAMES H. MCCARTNEY, M.D. ..... Chungking.

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ALFRED HOGG, M.A., M.B., C.M. ..... Wenchow.

J. J. DELAY, M.D. ..... Lungchow.

DR. C. C. DE BURGH DALY'S REPORT ON THE HEALTH OF NEWCHWANG

For the Half-year ended 30th September 1896.

THERE were four births and one death.

During the period under review the general health of foreign residents was satisfactory. A case of diphtheria, the first which has occurred for several years, ended fatally. The patient, a girl aged 18 months, first showed symptoms of ordinary tonsillitis on 29th April, but from this attack she completely recovered in two or three days, and was running about and apparently in excellent health until the evening of 8th May, when her mother noticed her breathing during sleep was rather noisy. Next morning there was a membranous patch on the right tonsil; the dangerous nature of the disease was at once recognised, and, in the absence of anti-diphtheritic serum, treated in the ordinary way. The case went rapidly from bad to worse, collapse occurred at 1 P.M. on 10th May, and death followed at 4 P.M. on the same day. The breathing was not at any time seriously interfered with.

Dr. GRIEVE, who had very kindly taken charge of my practice during my absence, at once took precautions to prevent the spread of the disease, and to him I am indebted for this account of the above case. Dr. GRIEVE adds that he had foreseen and pointed out the danger of syncope occurring on any exertion, but the little patient was very restless and insisted on getting into her parent's arms, and it was during this slight effort that collapse took place.

I regret that I am unable to report any improvement in the conditions of our food supply. Water, milk, and general food are all in constant danger of contamination with filth of various kinds.

So far as I could ascertain, the health of the native residents was also satisfactory, no epidemic of any kind having occurred.

A most determined attempt at suicide took place on board a British ship. A pantry "boy," a native of Ningpo, aged 23 years, had a dispute with the steward, and, seizing a small table-knife which was well worn down by frequent polishing on a knife-board, he entered it on the left side of his throat, and, cutting backwards and across, severed the trachea and œsophagus. When I saw him he was not much collapsed: very little bleeding had taken place; the wound was over 2 inches from side to side and was very deep in the central line; the trachea, completely severed, was tilted and in a faulty position with relation to the entrance to the larynx. On attempting to drink the fluid came out through the wound or passed into the trachea, causing violent fits of coughing. For over 60 hours the patient absolutely refused to allow us to do anything for him, struggling violently and with great strength whenever I attempted to feed him. His one wish was to die quickly, and he implored me to bring about

that result by cutting his throat to a still greater extent. However, starvation reduced him to a better state of mind and he expressed a desire to live and be cured. A soft rubber tube was passed by the mouth every four hours and guided into the lower opening of the œsophagus by a finger in the wound. In spite of a sharp attack of bronchitis he made rapid progress towards recovery, and left here some weeks after, on the advent of cold weather, with only a small opening into the trachea and œsophagus. He was given a tube and taught how to pass it for himself.

In accounting for the wild and blood-curdling legends about the doings of foreign surgeons and others, which are so prevalent amongst the natives, it may be of interest to add that this youth, in order to save his "face" in regard to the mutilation of his body by his own hands, gave the following explanation of the occurrence to the comprador and other natives on board the steamer he travelled home in:—"When I arrived in Newchwang I was very ill, and the captain sent me to the foreign doctor, who was unable to cure me, and consequently he (the foreign doctor) cut my throat in order to let out the hot air."

DR. E. W. VON TUNZELMANN'S REPORT ON THE HEALTH OF CHEFOO

For the Year ended 30th September 1896.

DURING the first half of this period the health of the Customs staff and of the foreign residents in general was very good, there being only the few below-mentioned cases of severe illness.

One member of the out-door Customs staff was in hospital for 14 days, suffering from malarial fever (contracted in South China) and severe dyspepsia. Three others were on the sick list for twelve, four, and five days, suffering respectively from ulcers on the shin, bronchial catarrh, and retino-choroiditis (specific).

The following case of intestinal obstruction, after recovery from acute dysentery, is of interest in several respects. It was in a male aged 3 years. He had had an acute attack of dysentery in August 1895, from which he recovered satisfactorily. When 4 months old also he had had severe bowel trouble. Prior to 16th November he had been in excellent health for some weeks; had gained weight, was plump, ate well, his diet being sedulously watched; usually one motion a day; inclined to be constipated. On 16th November he had the usual formed motion early; at midday he complained of pains in the stomach, would not eat. He was given 1 drachm of castor oil by the mother; this was vomited, with undigested food. At 5 P.M. I found him asleep; he was a little hot. At 7 P.M. his temperature was 102°.1 F.; I gave him frequent small doses of aconite. I was sent for at 1 o'clock the following morning, as he had been vomiting constantly, watery mucus; pulse about 140, small, soft; I gave him 10 minims of Schacht's solution of bismuth, etc., every two hours. By 9 A.M. the vomiting had ceased. A small enema at 1 P.M. brought away only a few scybala. 2 grains of mercury with chalk at 6 P.M. produced no result. He vomited two or three times during the night, and at 9 A.M. next day the bismuth mixture was resumed. Vomiting continued all day, getting hourly more frequent, of bile-stained mucus, granular yellow sediment, etc., no smell; the abdomen was retracted and hard; frequent colic made him cry continually; there was tenderness over the cæcum, and a little dulness on percussion. At 5.30 P.M. I examined him under chloroform; found a fæcal mass in the cæcum and ascending colon, where there was extreme tenderness, obvious through the narcosis. (*N.B.*—At no time was there any tenesmus or desire to go to stool.) A large soap and water enema, introduced with some force through a catheter passed about 6 inches into the bowel, together with kneading of the abdomen, brought away a large mass of hard and foul-smelling scybala; an hour later a large loose motion was passed. The acute symptoms ceased at once, not to recur; the retraction and hardness of the abdomen and the tenderness over the cæcum subsided only slowly, and for some days there was occasional colic, and a tendency to constipation, obviated by syrup of senna, etc. The child recovered completely, and has had no such severe attack since; but periodically he has had threatenings

of such, attacks of colic, local tenderness, constipation, etc.; these have progressively got less and less severe. It is clear that the dysentery in August had so injured the bowel as to make it liable to occasional local loss of tone, with consequent local obstruction and the thereon dependent troubles. In several respects the case resembles that of the Franciscan Sister described in my last year's Report, except that the dysentery and subsequent obstruction in the former were farther apart in time.

Early in February a young married woman, not a European, suffered from fever, moderately high; as no other symptoms were complained of, and she had recently come from a malarial district, I suspected the pyrexia to be malarial. A careful examination of the blood, however, revealed no malarial plasmodia and no pigmented leucocytes; only some leucocytosis, suggestive of inflammation somewhere. A careful physical examination revealed fixation of the uterus and a tender spot on the left side of the cervix. The local symptoms rapidly grew worse, pain, tenderness, etc., until I resorted to ichthyol tampons,* which gave her immense relief; the abscess discharged spontaneously per vaginam, and closed up rapidly.

On 4th October one of the Franciscan Sisters sustained a bad fracture of both bones of the left leg by falling into a cellar. I saw her a few minutes later; helped to extract her from the cellar, a difficult, and for the patient a painful, task; immediately set the limb, and put it up in plaster of Paris. She made an excellent recovery, and when, on 11th November, I removed the plaster case, finding no shortening or distortion and the joints flexible, she was able to get about almost at once, with the aid of a crutch for the first day or so.

In January one male adult suffered from a sharp but transient attack of pneumonia. Another had a moderately severe attack of influenza.

On 31st January I was sent for by a young European lady, who had fainted. I found her excessively anæmic, dangerously so, and her heart in a condition suggestive of fatty degeneration; the pulse, when lying quiet in bed, was 120, very quick, small, almost thready; the first cardiac sound was short, high-pitched, and faint. Altogether, her condition caused me the gravest concern. She improved somewhat on careful dieting and the use of iron and strophanthus, but when I saw her on 5th February she had just vomited some ounces of blackish-red blood, and complained of severe pain in the left hypochondrium, first felt during the night; her pulse was 132 and thready. Slight improvement followed on the administration of predigested food, with ice when required, and an occasional hypodermic of morphia, to relieve the severe pain associated with the ulcer in the stomach. On 8th February the exertion of sitting up in bed to micturate caused her to faint, and she remained unconscious for half an hour. The symptoms due to the gastric ulcer had been subsiding, but the cardiac condition was such as to justify the keenest anxiety, and it was clear that a fresh hæmorrhage, or any of the other accidents liable to supervene in a case of gastric ulcer, must almost necessarily be fatal. I therefore resorted entirely to rectal alimentation, and for some days she existed exclusively on predigested fowl's blood administered thus. It was well retained and absorbed, and by 10th February she was distinctly stronger, the pulse being 104. Small quantities of predigested milk gruel were now given by the mouth, and also a mixture containing bichromate of potash, $\frac{1}{3\frac{1}{6}}$

* *Medical Annual*, 1895, p. 510.

grain to each dose, given on an empty stomach,* the rectal alimentation being continued as well for a few days, until it became no longer necessary. The patient made a complete recovery, bore the summer well, and a trip to Japan ultimately established her in vigorous health.

The only other case of interest, excepting the series which follow, is that of the captain of a Norwegian steamer, who fell down a hatchway and sustained a somewhat uncommon injury, viz., fracture through the surgical neck of the right humerus, together with dislocation of the upper fragment. The dislocation was reduced, after two days, under chloroform, and the fracture set; on 19th June the fragments were well united, without any shortening. As I have not seen the patient since I am unable to state whether the joint is stiff or not.

The health of the community, both residents and visitors, as well as that of the natives, during the summer now just over has been uncommonly good, there having been no epidemic disease, like last summer's cholera, nor any considerable amount of dysentery or severe diarrhœa. The few cases of infantile diarrhœa which I have had under treatment, two or three of which set in severely enough, yielded almost immediately to treatment. The only offset to this happy condition has been the prevalence among the natives of malarial fever to an extent hitherto unknown in Chefoo; my colleague Dr. DOUTHWAITE informs me that during several months he treated daily some 20 fresh cases in his native dispensary. The Chinese attributed it, probably with accuracy, to the extensive turning up of long undisturbed ground, consequent on the roadmaking and building operations which this year have been carried on to a greatly increased extent. I frequently visited Dr. DOUTHWAITE's dispensary in order to obtain material for the study of the malaria plasmodium; the fever was usually tertian; and though quotidian cases were also common, I found in every case which I examined that the parasite was the well-known tertian plasmodium, two generations so maturing in these quotidian cases as to disguise the real type. I did not succeed in finding bodies of the crescent series in any of these cases; and as they were not of a severe character, it is probable that there were not many to find, if any.

As regards foreigners, I have never until recently seen a single case of malarial fever acquired for the first time in Chefoo or its neighbourhood; and when, towards the end of the summer, I saw case after case of fever originating *de novo* among the Chefoo residents, I naturally associated the outbreak with the disturbance of the foreshore on the west side of the Settlement. The dependence of malarial fevers upon the disturbance of soil which has long lain fallow, especially when such soil is saturated with organic matter, is wet, and is daily exposed for many hours to a blazing sun—conditions which unquestionably obtained in this case,—has so long been one of the truisms of sanitary science, that the possibility of its being questioned did not occur to me. As, however, very emphatic contrary opinions have been expressed, I cannot but refer to the abundant evidence in favour of my position contained in PARKES' *Hygiene*, MACLEAN on "Malaria," DAVIDSON on "Malaria," etc. This not being the place to summarise it, I permit myself only one short quotation:—"Malaria is notoriously rife in soils the upper strata of which are rich in organic matter, and are from any cause left to nature and the influence of the sun" (MACLEAN, article "Malaria," QUAIN'S *Dictionary of Medicine*).

A part of the foreshore has long been used by myriads of coolies for the deposition of ordure and all sorts of organic refuse, and such of it as is overflowed at high water is never-

* *Medical Annual*, 1895, p. 43.

theless very imperfectly cleansed by the sea, the water being very shallow, only a few inches deep in many places. At another spot a drain from the native town has been pouring out organic filth for years, so that the mud is chiefly composed of such; and the stench caused by its first disturbance was such as to overpower almost the Chinese labourers themselves. It is clear that the sea water had not been able to destroy all the harmful stuff, and if it could not do so in comparatively deep water, *à fortiori* could not a few inches or even a foot or two of sea water, probably already fouled with organic refuse and so deprived of its purative power, do anything more than render innocuous a superficial inch or so of the area turned up each low tide; so that a few minutes work when the foreshore is again laid bare will suffice to expose soil saturated with poisonous matter. That the operations in question will when finished improve the sanitary state of Chefoo is unquestionable; the sickness caused by them while in progress is the price which must inevitably be paid for the ultimate benefit, as innumerable instances all over the world have established beyond cavil.

I have selected the following cases to describe in detail, for, as I shall afterwards point out, I erred when in my letter to the Consular body I described the fever as malarial. It is a non-malarial remittent fever, and has to be discriminated from typhoid fever, with which, I believe, it has hitherto been confounded; for it appears to be a common enough disease.

CASE NO. 1.—European; female; aged a little over 30.

Previous History.—She had malarial fever in Shanghai about 1884; has not had it since. Was several years in Newchwang before coming to Chefoo; had good health there. On 20th April 1896 she had a feverish attack, evening temperature 102°, with headache and diarrhœa. A mixture containing bismuth and antipyrin stopped both, so that next day she was quite well; and continued so until this attack.

Present Illness.—20th September.—She sent for me about 6 P.M., being "feverish." I found her complaining chiefly of severe pains in the head, "not headache, but sore head." An attack of diarrhœa, which had lasted three days, had just been checked by a dose of castor oil. Ordered her 4 grains of antifebrin, and 10 grains of quinine early next morning.

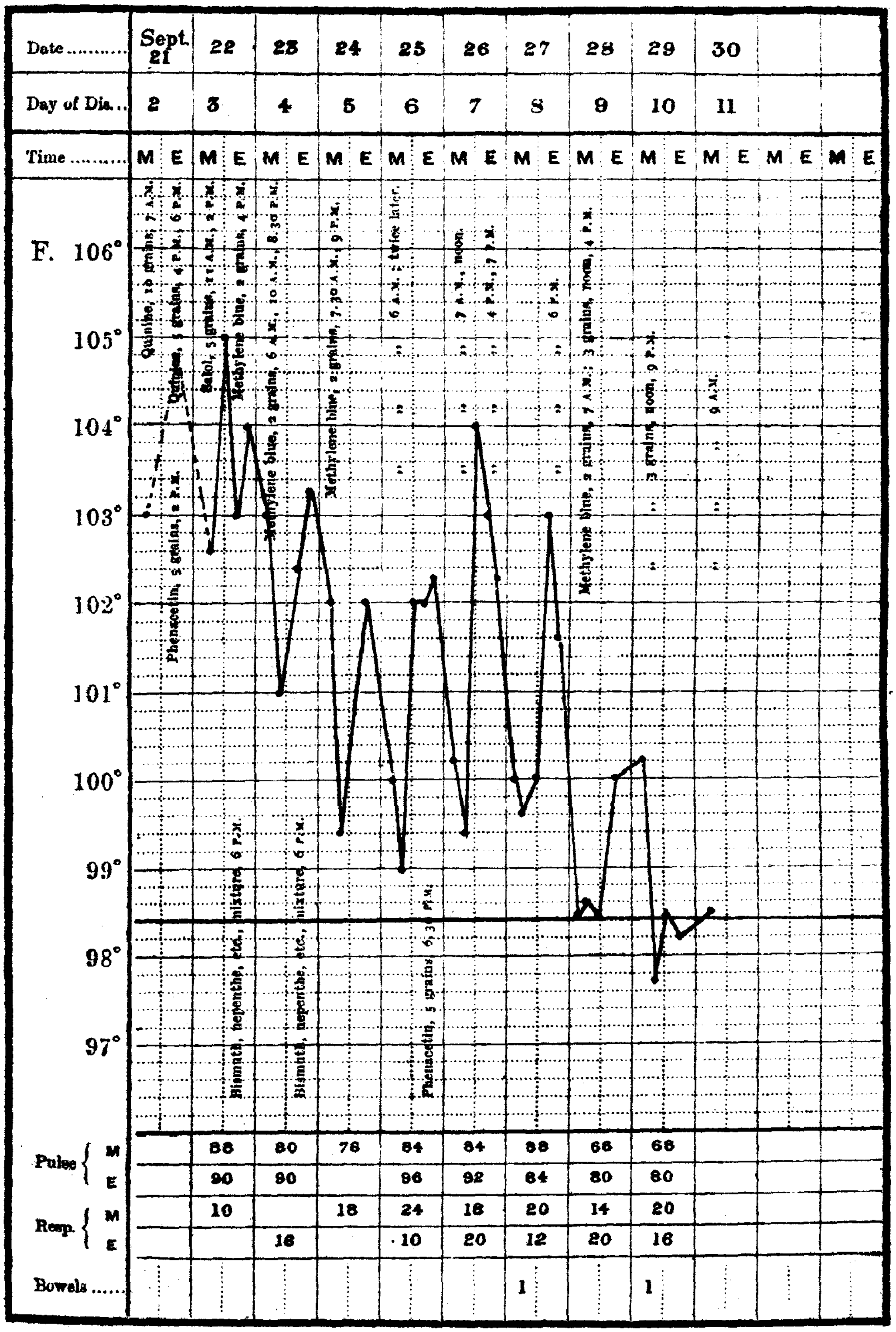
21st September.—5 grains of phenacetin were given at 2 P.M., to be followed by 5 grains of quinine every two hours from 4 P.M. (*N.B.*—To-day she was seen and treated by a medical friend of mine, I being laid up with fever.)

22nd September.—Pulse 80, regular, slow, fair size and tension; says she was "very hot from 3.30 to 6 A.M." Head, at 10 A.M., "very bad," vertex and forehead; bones sore. She vomits each dose of quinine as soon as taken. Epigastrium sore. No tenderness over liver or spleen; no enlargement of either. Bowels not open. No gurgling sensation in abdomen. No spots on the skin. Ordered 5 grains of salol every three hours from 11 A.M.

4 P.M.—I examined the blood, and found it swarming with the new parasites, to be subsequently described. I therefore substituted methylene blue, which in previous cases I had found to be useful in this fever, 2 grains every three hours.

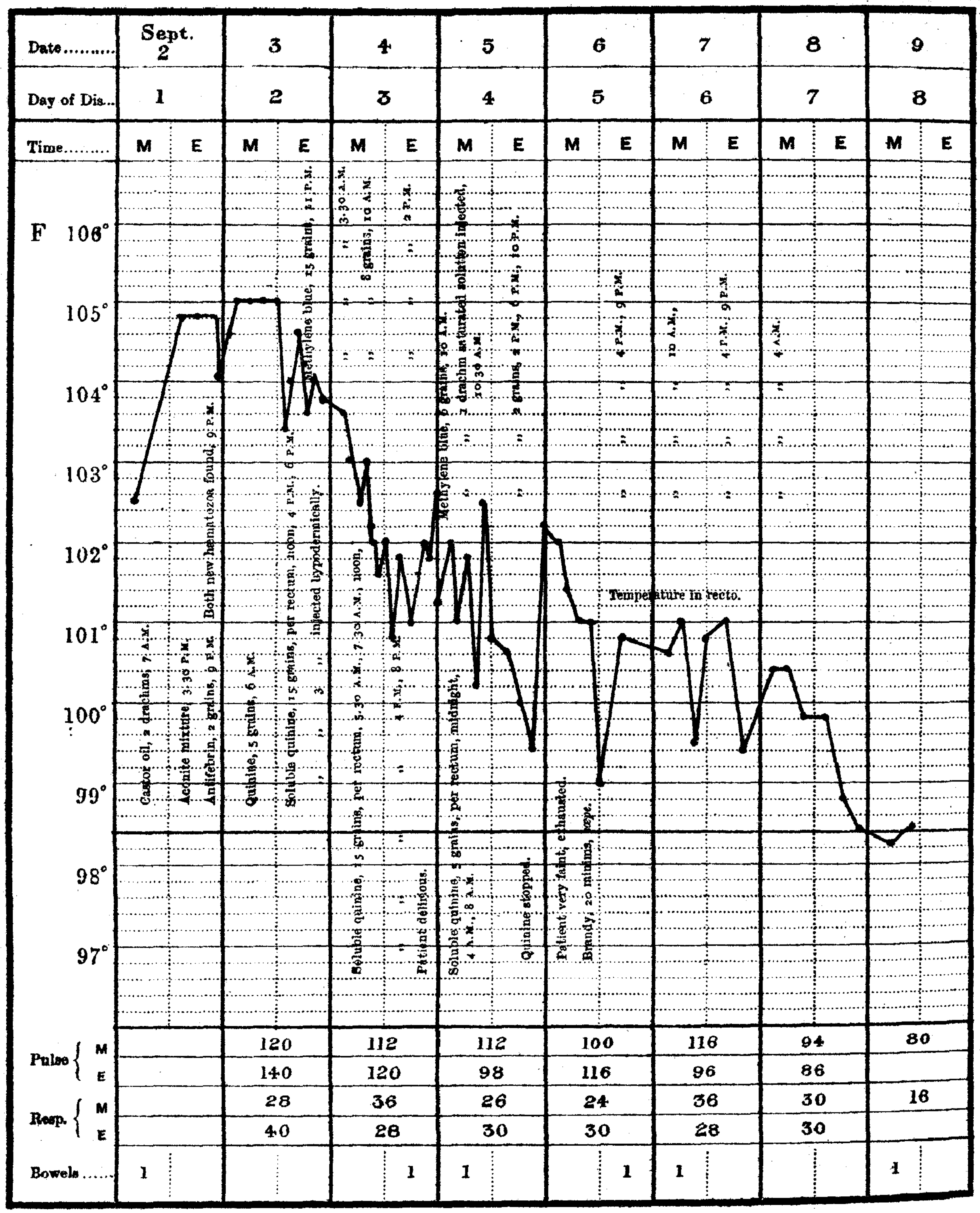
6 P.M.—Vomiting still continues. As she could not retain the methylene blue, nor food, it was clearly necessary to suspend parasiticide treatment for the time, and attend to the state of

CHART No. 1.



Date
Sept. 21
22
23
24
25
26
27
28
29
30
Day of Dis.
2
3
4
5
6
7
8
9
10
11
Time
M E M E M E M E M E M E M E M E M E M E M E M E M E
F. 106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Quinine, 10 grains, 7 A.M.
Quinine, 5 grains, 4 P.M., 6 P.M.
Phenacetin, 5 grains, 2 P.M.
Salol, 5 grains, 11 A.M., 2 P.M.
Methylene blue, 2 grains, 4 P.M.
Methylene blue, 2 grains, 6 A.M., 10 A.M., 8.30 P.M.
Methylene blue, 2 grains, 7.30 A.M., 9 P.M.
6 A.M.; twice later.
7 A.M., noon.
4 P.M., 7 P.M.
6 P.M.
Methylene blue, 2 grains, 7 A.M.; 3 grains, noon, 4 P.M.
3 grains, noon, 9 P.M.
9 A.M.
Bismuth, nepenthe, etc., mixture, 6 P.M.
Bismuth, nepenthe, etc., mixture, 6 P.M.
Phenacetin, 5 grains, 6.30 P.M.
Pulse M: 88, 80, 76, 84, 84, 88, 66, 66
Pulse E: 90, 90, 96, 92, 84, 80, 80
Resp. M: 10, 18, 24, 18, 20, 14, 20
Resp. E: 16, ·10, 20, 12, 20, 16
Bowels: 1, 1

CHART No. 2.



Date
Sept. 2
3
4
5
6
7
8
9
Day of Dis.
1
2
3
4
5
6
7
8
Time
M
E
F
106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Castor oil, 2 drachms; 7 A.M.
Aconite mixture, 3:30 P.M.
Antifebrin, 2 grains, 9 P.M.
Both new hæmatozoa found, 9 P.M.
Quinine, 5 grains, 6 A.M.
Soluble quinine, 15 grains, per rectum, noon, 4 P.M., 6 P.M.
Methylene blue, 15 grains, 11 P.M.
injected hypodermically.
Soluble quinine, 15 grains, per rectum, 5.30 A.M., 7.30 A.M., noon,
3.30 A.M.
8 grains, 10 A.M.
4 P.M., 8 P.M.
2 P.M.
Patient delirious.
Methylene blue, 6 grains, 10 A.M.
1 drachm saturated solution injected,
Soluble quinine, 5 grains, per rectum, midnight,
4 A.M., 8 A.M.
10.30 A.M.
2 grains, 2 P.M., 6 P.M., 10 P.M.
Quinine stopped.
Patient very faint, exhausted.
Brandy, 20 minims, repe.
4 P.M., 9 P.M.
10 A.M.
4 P.M., 9 P.M.
4 A.M.
Temperature in recto.
Pulse M
Pulse E
Resp. M
Resp. E
Bowels
120
140
28
40
112
120
36
28
112
98
26
30
100
116
24
30
116
96
36
28
94
86
30
30
80
16
1
1
1
1
1
1

the stomach; and as she stated that she "had not slept a wink since she was ill," I gave her this mixture:—

Schacht's solution of bismuth	3 drachms.
Nepenthe	½ „
Spirits of chloroform	2 „
Distilled water, to	6 ounces.

1 ounce every hour.

She took the whole of this.

23rd September, 9 A.M.—Patient has slept well; has now no nausea. Took a cachet of methylene blue at 6 A.M., vomited at 6.30 A.M.; the urine, however, is now a deep blue.

2 P.M.—She feels easy; is taking her food well. Took one cachet at 10 A.M., vomited at 11 A.M. Complains that the medicine made her throat very rough and uncomfortable.

6.30 P.M.—Suffering again from severe nausea, so that she refuses both food and medicine. Last night's mixture was again ordered, and all of it taken. At 8.30 P.M. she felt able to take a cachet, and the drug was retained till 9 P.M.

24th September.—Slept well; no nausea. Cachet at 7.30 A.M. retained, also one at 9 P.M.

25th September, 9 A.M.—Slept badly; head sore. Took and retained two cachets. Respiration very slow, with a long pause after each expiration.

5 P.M.—Complains of severe pains in the bones and head. Ordered 5 grains of phenacetin.

26th September, 10 A.M.—Complains of pains in the bones and of micturition being painful. Ordered 20 minims of spirits of nutmeg to be taken with each cachet.

5 P.M.—Micturition almost painless; there was no further complaint on this score, except once, when she was left without any spirits of nutmeg.

The subsequent history is one of progressive improvement, with no special incident, except obstinate constipation, which was overcome with difficulty. On 30th September, for the first time, she complained of pain in the right hypochondrium, which I found was due to the liver; firm digital pressure showed this to be tender all over, though not obviously enlarged.

6th October.—She has been free from fever since 29th September, but has regained very little strength, and is still excessively anæmic, for a reason which will be apparent enough later on.

9th October.—A sudden relapse occurred yesterday, temperature up to 104°, necessitating resumption of methylene blue.

CASE No. 2.—European; male; aged 8 years.

2nd September.—I was sent for at 7 A.M. to see this boy, who was said to be simply "feverish." I found that he had stuffed himself with grapes the previous evening, and I therefore ordered a dose of castor oil immediately. Though this operated, his temperature rose speedily, nearly to 105°, and I ordered, first, aconite, in frequently repeated minim doses, which is usually very effectual in reducing fever in children, if it be merely sympathetic; and, this proving useless, 2 grains of antifebrin, and also 5 grains of quinine to be given early next day. After ordering the latter, the advisability of examining the blood occurred to me, to search for malarial plasmodia, for as yet I had had no reason to suspect that I was dealing with a fever hitherto not discriminated. I found it swarming with the two new parasites to be described.

Next day, *3rd September*, I used quinine energetically. The morning dose, of 5 grains, having been vomited at once, I administered 15 grains of the soluble sulphate by the rectum every four hours, while giving pancreatised milk gruel by the mouth; both were retained. By evening, however, the boy's condition appeared critical in the extreme; his temperature kept persistently above 103° (in spite of 45 grains of quinine per rectum, and 3 grains given hypodermically, to a child of 8); he complained much of his head; his limbs and face muscles were constantly jerking and twitching, evidence of irritation of the brain cortex; and his blood was swarming with the parasites which I had recently discovered in a bad case of fever which had terminated fatally in my private hospital. At 11 P.M., therefore, I administered 15 grains of methylene blue, in aqueous solution, by the mouth—a dose which was repeated at 3.30 A.M. next day; both were vomited.

4th September.—The quinine was continued in the same large doses, 15 grains every four hours, by the rectum. He took also two 8-grain doses of methylene blue, but as each was vomited instantaneously their effect was *nil.* By the evening the boy was delirious, evidently from the quinine, as his temperature was lower; his pupils were widely dilated; he was very restless, deaf, his mouth dry, and he refused both food and liquids. He being clearly cinchonised to the fullest extent possible, almost dangerously so, I reduced the dose of quinine to 5 grains every four hours, and finally stopped it entirely; in spite of the large doses given, it had effected very little reduction of temperature, and its effect on the parasites was *nil.* The blood condition was somewhat improved, and as in a previous case (*vide* No. 4) I had had reason to attribute such improvement to methylene blue, I continued this during the day, giving an 8-grain dose at 10 A.M. and 2 P.M., which were retained.

5th September, 7.45 A.M.—Patient sleeping quietly on his side; occasional twitches of the muscles of the face, limbs, and trunk. A dose of methylene blue, 6 grains, given by the mouth, was vomited at once; given by the rectum, voided immediately; so at 10.30 A.M. I injected 1 drachm of a semi-saturated aqueous solution into the buttock; it caused no pain. A 2-grain dose, by the mouth, at 2 P.M. was retained, as were similar doses at 6 P.M. and 10 P.M.

9 P.M.—Pulse 100, slow, small; food and medicine taken well; sleeping, with occasional starts.

6th September, 1 to 2 A.M.—Boy very restless, picking nose.

7 A.M.—Very faint and exhausted; ordered brandy, in 20-minim doses, frequently. Condition of blood much improved. Stopped methylene blue till 4 P.M.

7th September.—Fair night, slept a good deal; no starts. Patient conscious and quite rational all day.

The child recovered without further incident and went for a sea trip with his father. His appetite became ravenous, and he regained strength fairly quickly.

CASE No. 3.—Male; aged $5\frac{1}{3}$ years; child of European father, Japanese mother; a slight, rather delicate child, never had very good health.

9th September, 10 P.M.—Found the child with a temperature of 102°.4, complaining of pains in the head when questioned. He had been ill for three or four days, being "very hot" every night, but though languid and disinclined to eat he had made no complaint before. After examining the blood I ordered 2 grains of methylene blue every three hours.

CHART Nº 3.

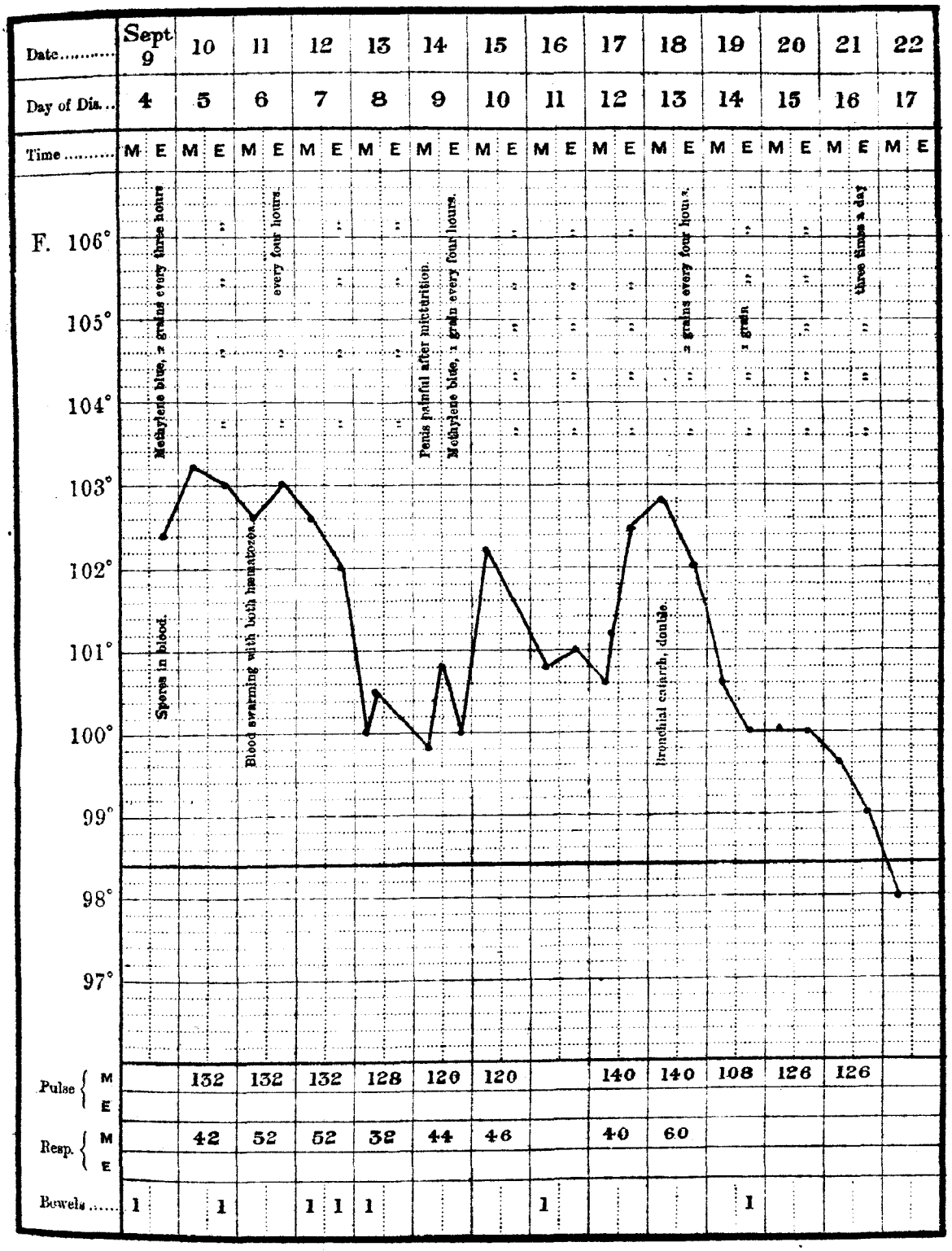
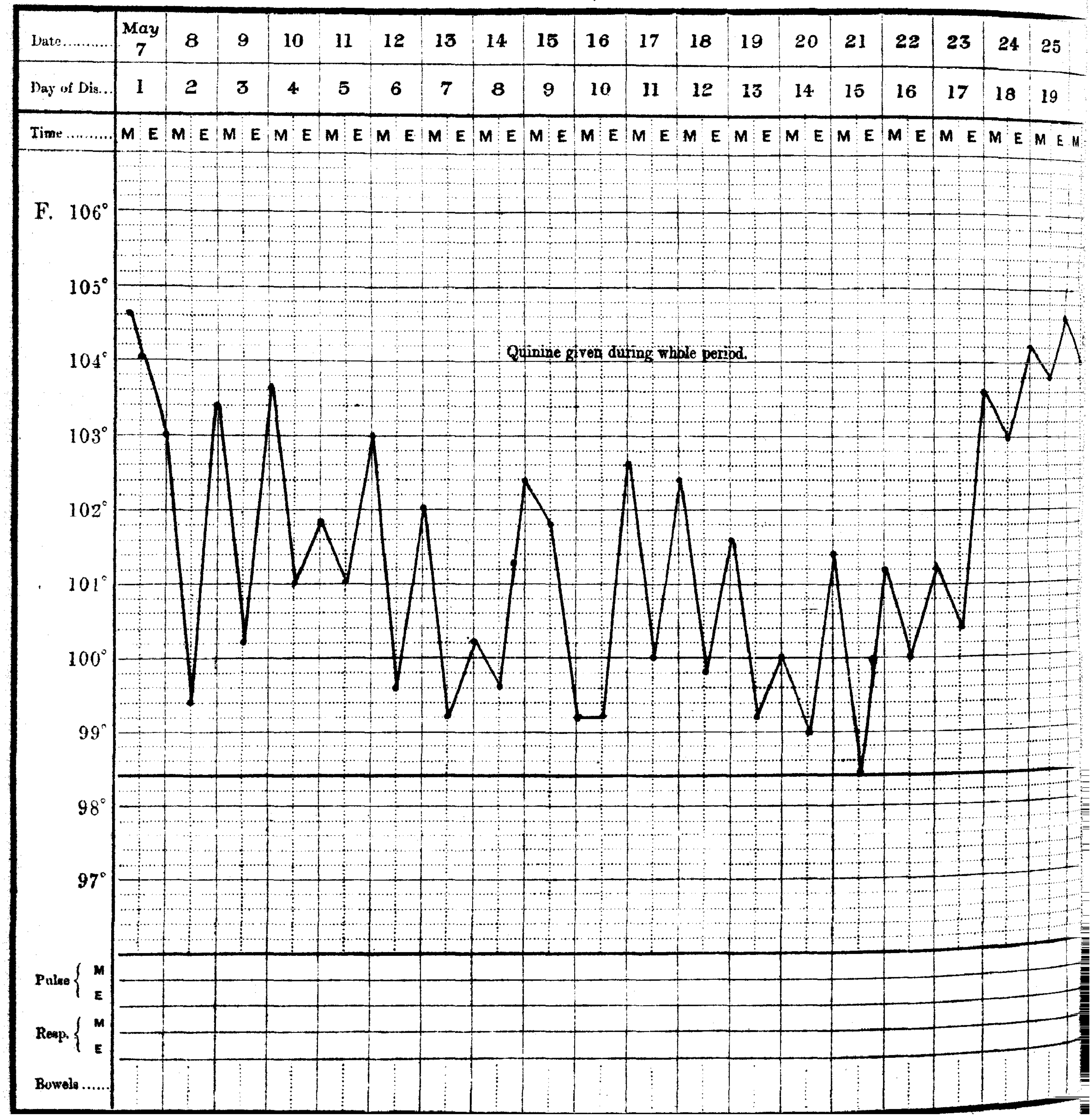

Date
Sept 9
10
11
12
13
14
15
16
17
18
19
20
21
22
Day of Dis.
4
5
6
7
8
9
10
11
12
13
14
15
16
17
Time
M E
F. 106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Methylene blue, 2 grains every three hours
Spores in blood.
every four hours.
Blood swarming with both hæmatozoa
Penis painful after micturition.
Methylene blue, 1 grain every four hours.
2 grains every four hours.
Bronchial catarrh, double.
1 grain
three times a day
Pulse M
E
132 132 132 128 120 120 140 140 108 126 126
Resp. M
E
42 52 52 32 44 46 40 60
Bowels
1 1 1 1 1 1 1

CHART No. 4.


Date
May 7
8
9
10
11
12
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14
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16
17
18
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20
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22
23
24
25
Day of Dis.
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
Time
M E
F. 106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Quinine given during whole period.
Pulse M E
Resp. M E
Bowels

10*th September*.—Vomited his medicine once only.

11*th September*.—Liver and spleen not enlarged, no tenderness. The child lies very quietly, without stirring, for hours; breathing very rapid. No typhoid spots on the body; no diarrhœa.

14*th September*.—Boy now sleeps and eats well. Micturition is rather painful and the point of the penis is sore. His convalescence was delayed by an attack of bronchial catarrh, as shown in the chart, which yielded quickly to treatment; did not necessitate the suspension of the methylene blue.

5*th October*.—The child is still feeble and anæmic, but is gaining strength. When first seen, and the next day, his condition was very serious. He appeared utterly prostrate, lying on the bed quite apathetic, refusing both food and drink. The pulse was almost thready.

Note.—When I made my first visit, on the evening of 9th September, I had no means of preserving a specimen of blood for examination at home; I therefore pricked a finger with a needle and took the drop of blood on the inside of a watch-glass. It was quite dry by the time I had the requisites for examining it, and when liquefied by normal salt solution the only organised structures I could find were some five or six spores (*vide* Fig. 6, Plate III), which were vigorously alive, dancing about so that it was difficult to keep one under observation.

For Chart No. 4, interpolated among my own series of cases, I have to thank Dr. AMES, U.S. Navy, of the U.S.S. *Detroit;* it is that of a case of fever contracted at Woosung in May 1896. There were several such cases; one was sent to the Shanghai General Hospital, where, after some hesitation, it was diagnosed as typhoid fever. In this case also, which was sent to Yokohama Hospital, where it ended fatally, the same diagnosis was ultimately made. In each case the diagnosis of typhoid appears to have been made by exclusion, the disease certainly not being any other known one. All the cases, however, differed from ordinary typhoid in that (1) there was no diarrhœa; (2) there were never any roseolæ on the abdomen or elsewhere; (3) no gurgling in the iliac fossæ; (4) no cerebral symptoms, delirium and the like. The one point of likeness was the long duration of the fever, the course of which, however, as this chart plainly shows, is not that of typhoid, which does not remit so markedly and persistently, as much during the first as the last week. However, I only venture to claim this as a case of the non-malarial remittent, which I believe to be associated with a certain new parasite, on these grounds. Dr. AMES has now on board the *Detroit* a case of fever in all respects identical with the one charted here; he very kindly put up three specimens of this man's fresh blood for me, and, about one hour later, I had the satisfaction of demonstrating to him, as well as to another U.S. naval colleague, the parasite before referred to.

I regard the chart as of especial value, as indicating the natural course of the fever when treated expectantly, the rational way of treating a disease for which no specific remedy is known.

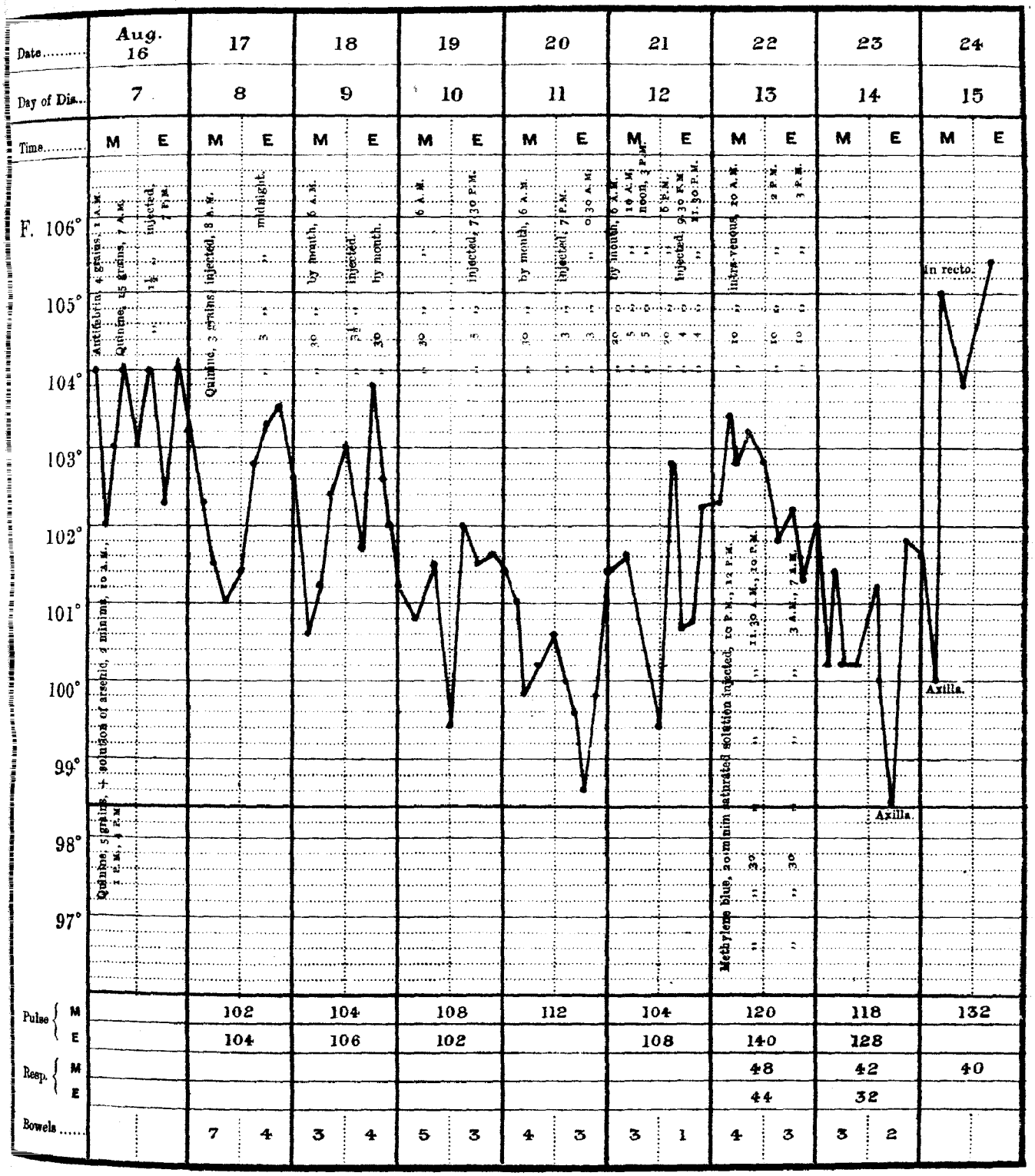
CASE No. 4.—I have put this case last, though it was actually my first, because it was very complex, the non-malarial remittent fever, to which the fatal issue was due, being mixed with a malignant form of malarial quotidian. As I wish to confine myself solely to the former disease, not to extend my paper to an excessive length I omit any detailed account of the symp-

toms, the salient ones being shown in the chart (No. 5). The patient was the commander of a coast steamer; he had been severely ill for six days when I saw him at 1 A.M. on 16th August; during this period his temperature had rarely been below 104°. His blood on 16th August was found to contain in profusion the pigmented plasmodia of the malignant quotidian "summer-autumn" fever of the Italian observers (*vide* Plate I), as well as a small number of the plasmodia of tertian fever. The latter disappeared after the first day; I have not figured them, as they are so well known. The pigmented plasmodia disappeared speedily under the vigorous use of quinine, per oram, hypodermically, and intra-venous; and at first the patient's general condition improved accordingly, so that the prospect of recovery appeared hopeful. As, however, these parasites were killed off, I observed from day to day increasing numbers of intra-corpuscular bodies of a kind entirely unknown to me, and not mentioned in any works concerned with malarial fevers, with which I am fairly well furnished. At the same time the blood, instead of becoming more and more watery, and therefore more readily diffusible between cover-glasses, as is usually the case, got so sticky and mucilage-like in consistence that ultimately a drop just remained as such, hardly spreading out at all. I had therefore to change my technique in examining fresh blood, and to adopt the method mentioned in LEE'S *Vade Mecum* (page 349), of adding to the blood a drop of 0.75 per cent. salt solution, tinged with methyl violet, a liquid which "in no wise affects the form of the elements." On the first occasion of so doing I had the good fortune to discover the adult forms of the parasites whose immature forms had been puzzling me for some time. A description of these is given later on. Seeing that quinine was entirely without effect on these parasites, as had been clearly enough shown clinically already, and as I proved by experiment with the parasites under the microscope, I cast about for some drug which might prove lethal to them. Further good fortune led me to select methylene blue, a drug which has been much lauded by sundry foreign observers for its effect on certain forms of malaria, especially in children.* I began its use on 22nd August, and I never again saw one of the above referred to extra-corpuscular parasites alive in this patient's blood, though it always had dead ones in large numbers. Unhappily, it was too late for the methylene blue to successfully exert its beneficent influence; the patient was already beginning to fail, and though a temporary effect was produced, as is shown by the chart, it proved evanescent, death occurring three days after the discovery of the nature of the materies morbi.

In this case the curative power of quinine in genuine malarial fever, due to its lethal influence on the plasmodia, was as clearly evident, both clinically and by actual ocular inspection through the microscope, as was its total powerlessness to deal with the parasites associated with the complicating remittent fever. The non-malarial character of this is even more clearly proved by Case No. 2, in which quinine was pushed to the utmost possible extent, with the result that its toxic effect began to be manifest in the patient, not at all in the parasites. Cases Nos. 1 and 3 were treated entirely by methylene blue; and it is worthy of note that the female patient was very intolerant even of the small doses of quinine given at the commencement, though at Newchwang she had often taken the drug, and had never before vomited it.

* *Lancet*, 1894, 1895, *passim*.

CHART Nº 5.


Date
Aug. 16
17
18
19
20
21
22
23
24
Day of Dis.
7
8
9
10
11
12
13
14
15
Time
M E
F. 106°
105°
104°
103°
102°
101°
100°
99°
98°
97°
Antifebrin, 4 grains, 1 A.M.
Quinine, 15 grains, 7 A.M.
injected, 1 P.M.
Quinine, 3 grains, injected, 8 A.M.
midnight.
by mouth, 6 A.M.
injected.
by mouth.
6 A.M.
injected, 7.30 P.M.
by mouth, 6 A.M.
injected, 7 P.M.
10.30 A.M.
by mouth, 6 A.M.
10 A.M.
noon, 2 P.M.
5 P.M.
injected, 9.30 P.M.
1.30 P.M.
intra-venous, 10 A.M.
2 P.M.
3 P.M.
In recto.
Axilla.
Quinine, 5 grains, + solution of arsenid, 4 minims, 10 A.M., 1 P.M., 4 P.M.
Methylene blue, 20 m in saturated solution injected, 10 P.M., 12 P.M., 11.30 A.M., 2.0 P.M., 3 A.M., 7 A.M.
30
Axilla.
Pulse M
E
102
104
104
106
108
102
112
104
108
120
140
118
128
132
Resp. M
E
48
44
42
32
40
Bowels
7 4
3 4
5 3
4 3
3 1
4 3
3 2

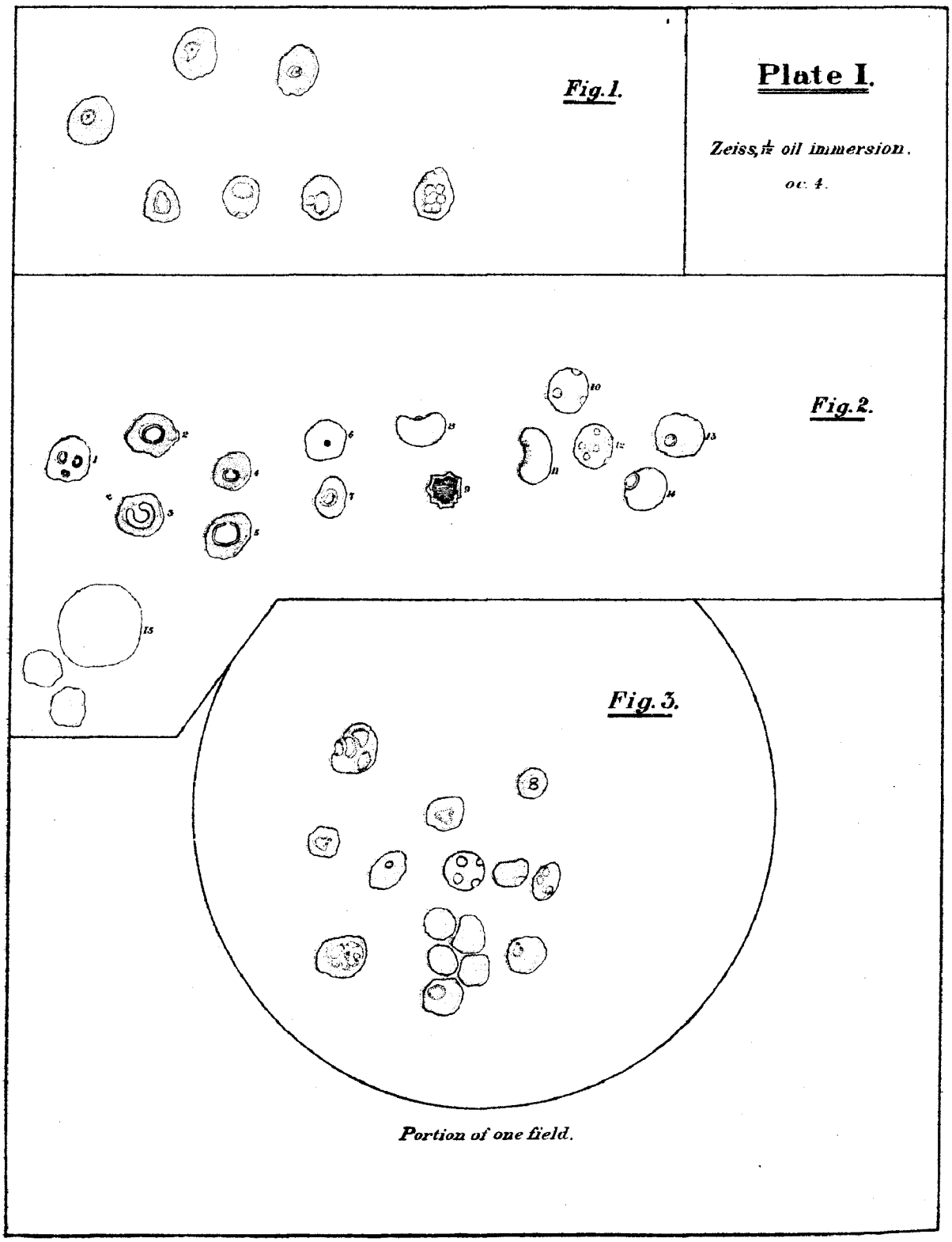


Fig. 1.
Plate I.
Zeiss, 1/12 oil immersion.
oc. 4.
Fig. 2.
Fig. 3.
Portion of one field.

In this fever, unlike genuine malaria, the onset is not associated with chills or rigors; nor are the daily exacerbations. The temperature rises without any subjective sensation, and I have several times seen patients who were astonished to find that their languor, head pains, etc., were associated with a temperature of 102° or more. The spleen is not enlarged nor tender; nor is the liver, as a rule; occasionally the latter is congested, and so slightly enlarged and tender. There is a tendency to bronchial catarrh. Constipation is the rule; but in several cases, especially sundry mild ones which I thought it unnecessary to describe individually, intestinal catarrh preceded the onset of fever.

Typhoid fever is the only other disease with which this remittent fever is likely to be confounded, and the differential diagnosis has already been discussed. Owing to the long duration of both when left to run their natural course, they are extremely likely to be confounded; and I believe that this is the explanation of the often referred to anomalous character of typhoid fever in the East. I have never seen a case of so-called typho-malarial fever, the existence of which is generally questioned, though stoutly maintained by several men of extensive experience. Possibly it is only this non-malarial remittent.

In the *Medical Annual* for 1896, page 318, is an account by Dr. MITRA of Indian remittent fever which fits these cases with remarkable accuracy, except in this single point, that I have not observed the headache, or rather the head pains, to be any index to the temperature; it depends rather upon the life phases of the parasites (a point to which I shall return later), for though the temperature is no doubt similarly dependent, the relationship appears to be more simple in the former than in the latter case.

Pathology.—The two new parasites to be immediately described having been first observed in the blood of Case No. 4, I have depicted in Plate I specimens of the various parasites found in that case. Fig. 1 shows various stages in the development of the pigmented quotidian plasmodium of the so-called "summer-autumn" fever of the Italian observers; this parasite was present in great profusion, as is shown by Fig. 3, which represents a portion, about one-third, of one field of the microscope, drawn as accurately as possible, quite without selection.

This form rapidly decreased in number, while at the same time infested red corpuscles, such as are depicted in Fig. 2, became more and more abundant. The most striking of these novel appearances was that of a brilliant, double-contoured crescent, varying in size from a barely perceptible dot up to two-thirds the size of a red corpuscle (1, 2, 3, 4, 5, Fig. 2). When focussed down upon, the crescent became clearly defined, while the outline of the red corpuscle was still indistinct, as if it were external to the latter; this I believe to be only an optical appearance, due to the high refrangibility of the parasite. No less abundant were bodies such as No. 7 in Fig. 2. By careful focussing the dull greyish-white body inside the corpuscle is seen to be surrounded by a double-contoured crescent, which has the same red colour as the mass of the corpuscle; this appearance I believe to be produced when the parasite is lying nearer that side of the corpuscle which is remote from the eye.

The double-contoured circular bodies represented in Nos. 6, 13, and 14 appear to be lying on the corpuscles, external to them, as is clearly shown by No. 8, Fig. 2.

The reniform body, No. 11, and the one with angular projections, No. 9, must be compared with *A*, Fig. 1, Plate III, and *A* 3, Fig. 2, Plate III, in the description of which they will be again referred to.

Plate II represents organisms which I first saw on the evening of 20th August, when for the first time I diluted a drop of fresh blood with about an equal volume of normal salt solution. A couple of flagellated bodies in active movement first caught my eye; I have not represented them in the plate, as they are very familiar objects. Then an object in active internal movement (Fig. 1) came into view. The greater part of it was occupied by two very clearly defined tentacle-like objects, each bent on itself, its free end swollen into a knob, and attached at the other end to an ill-defined reddish-brown body; above, a portion of a third similar object was visible, lying in a plane at right angles to that occupied by the other two. These two were in constant motion, in the direction of the arrows, so as to narrow the enclosed space, and then in the opposite direction widening it, like a coiled spring. As I watched it the corpuscle rolled over a little (β, enlarged, for clearness), allowing the free end of the posterior tentacle to be seen through the space bounded by the other two. I watched this object for half an hour, hoping to see it escape from the corpuscle, but was then compelled to leave it. I have never since seen a similar intra-corpuscular object; but *a*, Fig. 2, represents a very similar body which I found free in a permanent preparation of blood from the same patient, stained with magenta and mounted in glycerine. I once also saw a similar three-armed body in a drop of blood from a man with a mild attack of this fever; it moved very rapidly across the field of the microscope, and I was unable to find it again.

When, after two hours absence, I again returned to the microscope I found the field occupied by some 20 large objects, such as I have tried to represent in Fig. 3. They were in such continuous and active movement that I found it impossible to finish a sketch of any one; could only catch an occasional posture, and complete the figure from memory: hence the incompleteness of some of the figures, *e.g.*, 13, 7, 8, 9. I had just drawn 2 when a rim suddenly appeared round it (3); this rim widened, obviously by its edge being more folded in (4), and then narrowed again. It was not till I saw something like No. 8, and then No. 5, that I suddenly realised that I was watching medusæ at play in a drop of blood; and incredible as it seems, and for a moment seemed to me, my incredulity could not last long in face of what I had before my eyes. I saw now that the rim, now present now absent, widening and narrowing, was the edge of the necto-calyx, sometimes curled in sometimes relaxed, and that the conical object in the centre of No. 5, which itself moved from side to side, was the manubrium. As I watched one medusa turn over I caught a glimpse through the swimming-bell of a trifid object (13), which was suddenly projected, dividing the space into three parts, and as suddenly withdrawn. No. 11 represents a view of the dorsum, with four blunt knobs on it. I have never again seen this sight. Next day the blood contained still a large number of free medusæ, but they were all motionless, apparently dead; No. 6 represents the under aspect of such a one, the swimming-bell's orifice contracted to a linear opening. 12, 14, and 15 were drawn from

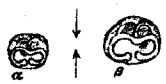


Fig. 1.

Fig. 2.

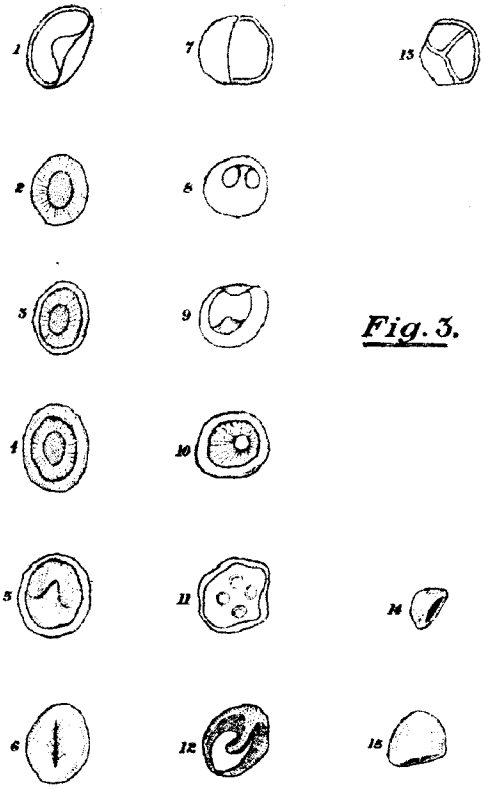


Fig. 3.

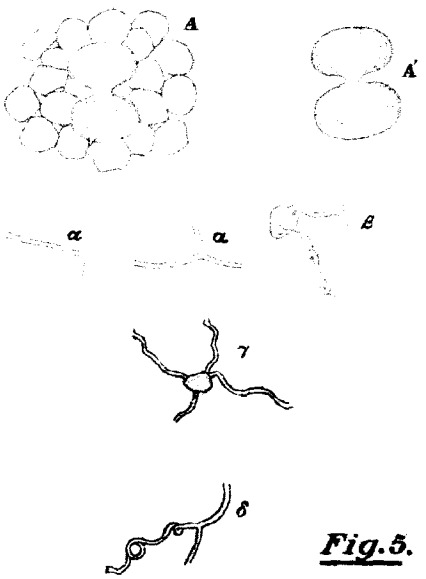


Fig. 5.

Fig. 6.

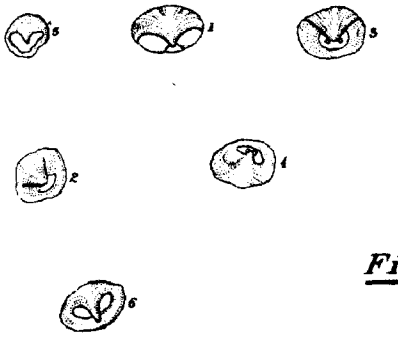


Fig. 4.

Plate II.

Zeiss, $\frac{1}{12}$ oil immersion,

oc. 4.

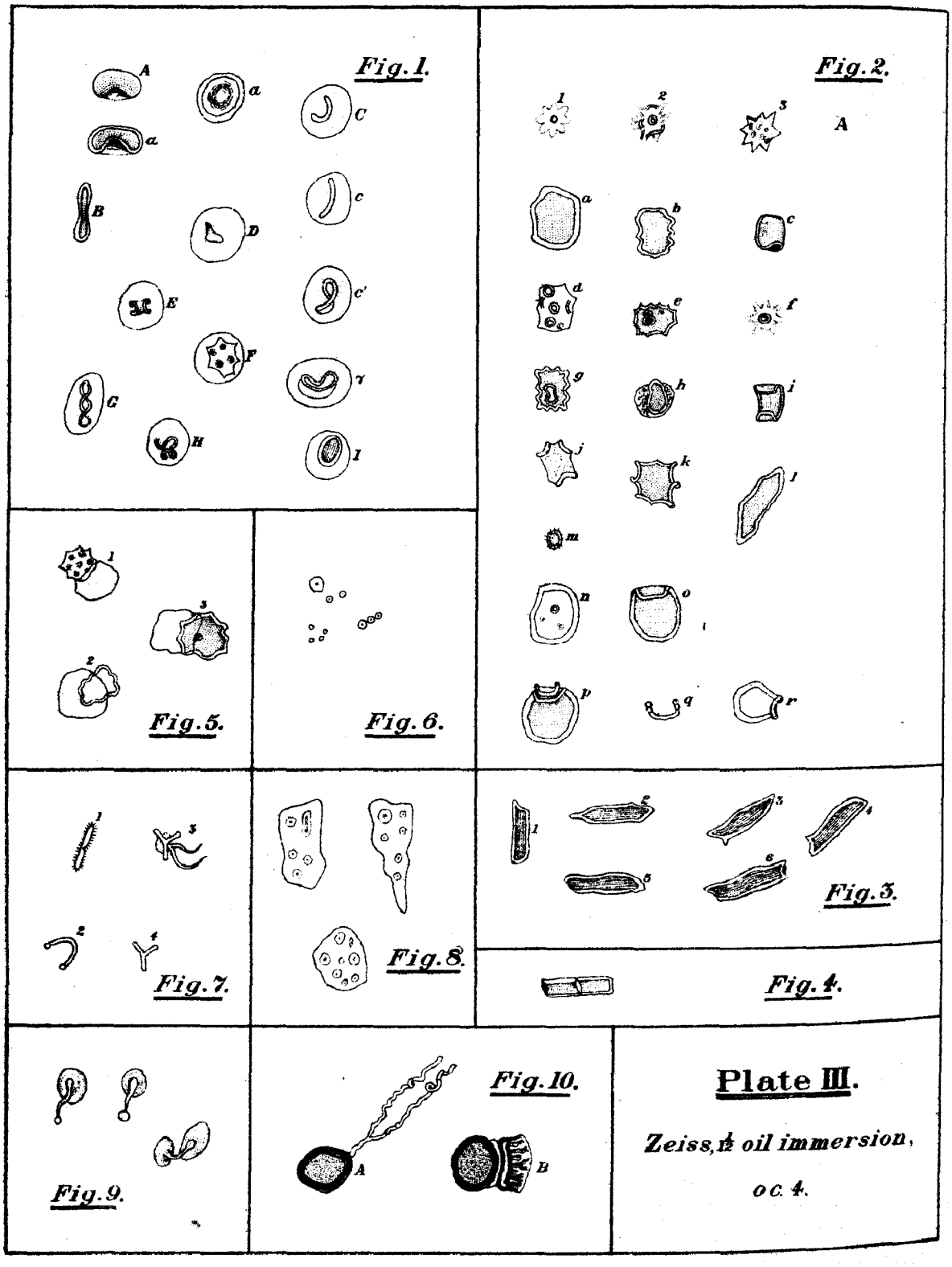


Fig. 1.
Fig. 2.
Fig. 5.
Fig. 6.
Fig. 7.
Fig. 8.
Fig. 3.
Fig. 4.
Fig. 9.
Fig. 10.
Plate III.
Zeiss, 1/12 oil immersion,
oc. 4.

specimens free in the blood of Case No. 2 when it was impregnated with methylene blue; they were not quite dead, but their movements were very slow and languid.

Fig. 4 represents an earlier stage of these *Medusæ sanguinis hominis*, as I propose to call them provisionally. They are drawn on too large a scale proportionately with the free medusæ of Fig. 3, which were three or four times the size of a red corpuscle, whereas these are about the same size.

In No. 1, Fig. 4, is seen the manubrium, with a fine line (? tentacle) running from near its apex, on each side, to the bounding surface; No. 2 shows three such; in No. 3 these lines had disappeared and two bright spherules taken their places; No. 4 shows the same spherules, only a good deal larger. (*N.B.*—Nos. 1–4 were consecutive phases of the same object.) The manubrium is often to be seen stretching itself out, contracting, and its apex wandering from side to side.

In Fig. 2 *b*, *c*, and *d* represent various aspects of dead free medusæ in a preparation of blood from Case No. 4, prepared by running a drop of 1 per cent. solution of osmic acid under the cover-glass of a preparation of fresh blood; *d* shows the sexfid edge of a contracted nectocalyx.

In Fig. 5 are depicted various objects from a cover-glass preparation of fresh blood fixed with absolute alcohol and stained with 1 per cent. eosin, and methylene blue; all these objects lay in a sort of thick bed of red corpuscles. *A* shows a dumb-bell shaped object stained blue: the optical section of the upper half shows a fairly thick body wall; in the lower half no structure was perceptible, only a few indistinct wavy lines. By carefully focussing it was made clear that each half was really spherical, as *A'*. Many of the dumb-bells had broken across, and so there were several single blue-stained spheres; the body shown at 15, Fig. 2, Plate I, is doubtless one of these, which has not taken the blue stain. The above-mentioned bank of red corpuscles was full of bright bluish bodies like α, many of them branching; two might be seen taking origin from a rounded, granular, blue-stained body (β), or sometimes four (γ). The whole preparation was studded with curiously coiled and contorted objects like δ, very brilliant, unstained, with a great likeness to a piece of normal elastic fibre, only more coiled. (*Vide* Plate III, Fig. 10.)

Fig. 6 is a reproduction from a microphotograph taken by Mr. H. Bristow, H.B.M. Consul, Tientsin, giving the inferior aspect of the medusa and showing the crenated edge of the swimming-bell (Case No. 2).

Plate III represents various forms of another parasite, which I invariably found associated with the *Medusa sanguinis hominis*.

If a drop of blood suitably diluted be very quickly put under the microscope, the appearances shown in Fig. 1 are seen. One of the most common is a reniform figure (*A*, *see also* No. 11, Fig. 2, Plate I), which changes to *a* when the corpuscle turns over; careful focussing shows the corpuscle to be occupied by a double-contoured organism (*a*). A fiddle-shaped body *(B)* is also very common. *C* shows what appears to be a linear parasite, an impression which is strengthened when it is seen to straighten itself out *(c)* and lash backwards and forwards;

continued observation, however, shows that this double-contoured line is only a free edge of the contained parasite, which in the instance depicted successively assumed the forms *C*, *c*, *c'*, and *γ*. The contained parasite often appears to have a bluish tinge, probably only a contrast effect of the red body of the corpuscle with the colourless space from which the parasite has displaced the hæmoglobin. Some, however, of the corpuscles have a reddish-brown tint, darker than the red of a normal corpuscle, in correspondence with the colour of the contained parasite.

In a very few seconds the parasites begin to escape from the corpuscles, a process depicted in Fig. 5.

Fig. 2 shows a variety of the forms to be found free in a fresh blood preparation which has been put up for a few minutes and sealed. They are all alike in these points: (1) that the organism is invested by a clear, structureless, double-contoured membrane, any part of which appears capable of being protruded, as an angular projection or a more slender object, like a snail's "horn," by the living substance beneath; (2) each has an orifice on the ventral surface, surrounded by a flexible, very mobile lip, which when extended in death is shaped very much like a Hodge's pessary (*vide h*, Fig. 2); in the living organism this flexible lip is in constant activity, dilating, contracting, and extending itself in various directions; *p* shows the anterior end of this lip, which suddenly appeared from below, in front of the curved-over tip of an organism like *o* in the same figure, while I was watching it. As the creature turned over a little two small brilliant balls *(q)* became apparent on it, and then it was again retracted; this appearance I have often seen.

A 1, 2, 3, Fig. 2, illustrate the appearances sometimes presented by one of the commonest forms of this parasite when focussed down upon from above. At first a brilliant point is alone seen, the body being hazy and indistinct; this becomes a circle (1), which then becomes double-contoured, while several brilliant, double-contoured, continually writhing lines appear (2), these being the edges of such of the angular projections as chance to be in focus; finally, several of these projections are clearly defined, the creature being now seen to be somewhat star shaped. The angular projections, the double-contoured margins of which are never all exactly in focus at once, are continually changing their relative size and direction; *f* shows the under surface, with a circular aperture, surrounded by the same double-contoured lip; it being in focus, the body of the creature is obscured.

a, *b*, *k*, *h*, and *n* are flattened forms, some with straight some with wavy edges; *c* shows one of these curled over, as it is when inside the red corpuscle (*vide b*, Fig. 1); *i* has its two ends curled over. *d* and *e* show the dorsal and ventral surfaces of a flattened form, the surface of which is studded with a few blunt knobs, the optical section of one of which has the appearance of a double-contoured circle; the lip shown on the ventral surface was seen to be in ceaseless motion, now stretching out to the size of that of *h* (which was a dead specimen from an osmic acid preparation), now contracting to the shape and size depicted. *r* represents a very common form, the up-standing part when in focus (so that the body is dim) being strangely brilliant, and constantly undergoing slight changes in shape, so that it flickers in a curious and very beautiful manner, producing an appearance much like that of a gas-jet illumination with a light breeze playing over it; the mouth lies just below the rim, and this flicker is probably due to the movements of the lip.

Fig. 3 represents a much less common form, which I have only seen on about a dozen occasions; it is much more worm-like. 1 to 6 represent the changes undergone by one specimen in about 15 minutes. An orifice was very apparent at one end, in 1 as a mere black dot, in 5 as a much larger gaping cavity; a similar opening was less distinctly seen at the other end (6). The body was very distinctly striated longitudinally.

Fig. 4 represents a phenomenon which I have only seen once, apparently two of the organisms shown in Fig. 3 conjugating.

Fig. 6 represents the nucleated spores, which are sometimes to be seen in countless numbers. Sometimes three are connected in a string; usually they are free, and vary a good deal in size; they dance about with great activity, and I have several times thought that I could detect cilia on them. There is usually also a profusion of small bright particles without nuclei, which when carefully focussed show a distinct disc, usually more polygonal than circular; they also dance about, very much like whirligig beetles on a pond. As I was watching the organism shown in 3, Fig. 5, emerging from its corpuscle, I saw it emit one of these small non-nucleated bodies from its under surface at the moment that its orifice (seen indistinctly through its substance) got outside the corpuscle; this object danced about the field for a few seconds and then vanished from the field.

Fig. 7 represents various objects seen in fresh blood preparations. 1 is a jointed body, apparently fringed with hairs or cilia, which I watched once for half an hour; it was poking about, wandering backwards and forwards between the same two or three corpuscles, in a most purposeful manner. 4 was a brilliant, double-contoured body, the three arms of which extended in three dimensions; it was dancing about with great vigour, as was the curved body (2), apparently of similar material. 3, in the same figure, shows a similar three-limbed bright object, with two long appendages, all in languid motion, which were protruding from a small, contracted, star-like organism (*vide A*, Fig. 2) in a preparation which had been put up some 12 hours and been left in a room at a temperature of about 65° F., so that the organisms were all nearly motionless, or quite so.

Fig. 9 represents objects seen in a recent preparation of fresh blood, into which a drop of 1 per cent. osmic acid solution has been run. This causes a most violent commotion; when it subsides, the various forms of the parasites are all gone, and only small dark spheres are to be seen, together with many of the objects depicted. The osmic acid apparently causes the organisms to undergo violent contraction, while some of them vomit their internal organs, which become fixed thus.

Fig. 10 is from a cover-glass preparation of fresh blood, allowed to dry (about 1 minute), fixed by osmic acid vapour and stained with a drop of a concentrated alcoholic solution of methyl violet. This is able to penetrate the integument, which I have found no aqueous stain capable of doing.

The convoluted organ protruded from *A* has not taken the stain. The comb-like body projecting from *B*, connected with it by a sort of membrane, impossible to reproduce in the sketch, has stained.

Fig. 8 represents phagocytes from a patient whose blood was saturated with methylene blue. The blood was diluted with normal salt solution only, without any colouring matter, so that the blue-stained spores with which the phagocytes are crowded must have got stained in the blood stream. This probably indicates the mode of action of methylene blue.

A most notable fact about these parasites is the enormous number which the blood may contain without producing any obvious symptoms, sometimes none at all,—a point in which they differ *toto cœlo* from the *Medusa sanguinis hominis*.

I have found the medusa in four adults and in four children; in every case there was pyrexia, which only ceased when they had completely disappeared from the blood. The other parasite I found in 21 adults and in 10 children, or, excluding those who also had the medusa, in 17 adults and six children. Of these, four adults only and two children had fever, lasting in each case from two to four days; it was never high, 103° being the maximum in the adult cases, nor were the other symptoms severe. Three of the infected adults had never had malarial fever, and four of the children; of these three adults, however, one only could be said to be in vigorous health, and his infection was recent, as I examined his blood late in August and found it then quite normal.

In one household, situated on the west side of Yentai Hill, all the members of the family—father, mother, and five children—were infected, including even an infant of 12 months, not yet weaned; one of these children was Case No. 2.

As regards *treatment*, the influence of methylene blue on the *Medusa sanguinis hominis* has been sufficiently indicated in the cases narrated; it almost at once killed the parasites free in the blood, and prevented their reproduction. From sundry *Lancet* references I learned that it has been given in doses up to 9 grammes (=135 grains, about) per diem, and I accordingly began giving it in large doses; but I soon found that smaller ones were equally efficacious, and much more likely to be retained. Children take it more readily than they will quinine, in a sweetened mixture; for adults it is best given in cachets. The main inconvenience is the painful micturition which commonly results, but this is generally preventable by combining it with spirits of nutmeg.

Case No. 1 took 45 grains, of which 33 were retained; 12 being vomited, though sometimes after an hour, diminishes the total to about 38 or 40 grains.

Case No. 2 took and retained 66 grains, and Case No. 3, 80, of which 60 were retained; as both these were children, it may be said that they took at least three times as much as did the adult.

The best indication as to the dose is to be gathered from the urine; this should be maintained of a deep indigo colour, and it seems to me that the dose which will do this is an adequate one.

The other parasite is very much more resistant than is the medusa, as these experiments show.

No. 1.—Prepared three specimens of fresh blood, diluted each with an equal volume of—

Result after 4 Hours.

(1.) 0.75 per cent. salt solution	Swarming with free parasites, very lively.
(2.) 0.75 per cent. salt solution + salicin, 1 per 1,000	
(3.) 0.75 per cent. salt solution + salicin, 1 per 10,000	

No. 2:—

(1.) 0.75 per cent. salt solution	Swarming with free parasites, very lively.
(2.) 0.75 per cent. salt solution + neutral sulphate of quinine, 1 per 1,000 .	
(3.) 0.75 per cent. salt solution + methylene blue, 1 per 1,000	

No difference was perceptible between any one specimen and another as regards the liveliness of the parasites.

Result, 2.45 P.M.

No. 3.—At 2 P.M.:—

(1.) 0.75 per cent. salt solution	Swarming with free parasites, very lively.
(2.) 0.75 per cent. salt solution + Fowler's solution of arsenic, 1 per 10,000 . .	Abundance of intra-cellular parasites; very few free ones, these languid.
(3.) 0.75 per cent. salt solution + eucalyptus oil, 1 per 10,000	Abundance of intra-cellular parasites; very few free ones, fairly lively.
(4.) 0.75 per cent. salt solution + peppermint oil, 1 per 10,000	Abundance of free parasites, less lively than in (1.).

Nos. 2 and 3 looked as if the blood had just been drawn and rapidly put up.

3.15 P.M.—(2.) Unchanged; (3.) and (4.) unchanged, but the parasites just as lively as in control specimen.

5.30 P.M.—(2.), (3.), and (4.). Parasites as lively in all three as in (1.), and nearly all free.

Result after 1½ Hours.

No. 4:—

(1.) 0.75 per cent. salt solution	Swarming with free parasites.
(2.) 0.75 per cent. salt solution + mercuric chloride, 1 per 1,000 . . .	None such; numerous motionless spherical bodies.
(3.) 0.75 per cent. salt solution + mercuric chloride, 1 per 10,000 . . .	Swarming with free parasites, perhaps a little languid.

Result after 3 Hours.

No. 5:—

(1.) 0.75 per cent. salt solution	Abundance of free parasites in all, very lively; no difference in the preparations.
(2.) 0.75 per cent. salt solution + carbolic acid, 1 per 10,000	
(3.) 0.75 per cent. salt solution + salicylic acid, 1 per 10,000	

Corrosive sublimate is thus seen to be the only drug which killed the free parasite, and it only when used to an extent impossible therapeutically. I hoped, however, to find that mercury might be a remedy, and as I had among my clientele a youth who had been slightly mercurialised for over a year, and had also been as much exposed to infection by these parasites as anybody in Chefoo, I examined his blood, hoping that one disease had protected him from another; however, I found his blood swarming with the smaller parasites as thickly as in any non-mercurialised person.

As to the clinical significance of these parasites in the blood, I do not yet know enough about them to speak with any confidence. However, putting aside those Chefoo residents whose infection I believe to be recent, so that the ultimate effect producible by the parasites, if any, is not yet apparent, I have learnt to look confidently for these organisms in individuals who have any history of past malarial attacks; so far eight such persons have come under my notice, and in each I have found the parasite, always in the greatest profusion. I am therefore much disposed to regard them as the cause of the profound anæmia and cachexia of malarial subjects. Supposing that the creatures live in the blood corpuscles of their host without very much impeding the due performance of their function as oxygen carriers, it is quite evident that they must both increase his food requirement and throw increased work upon his excretory organs; and if his digestive and excreting organs fail to respond to these increased demands, his nutrition must suffer, and the blood will be the tissue first affected.

Why their presence is sometimes associated with fever, though more often not, is a point to be investigated; but it is tempting to speculate upon the connexion which naturally suggests itself between them and the periodic character which past malaria impresses upon many subsequent ailments.

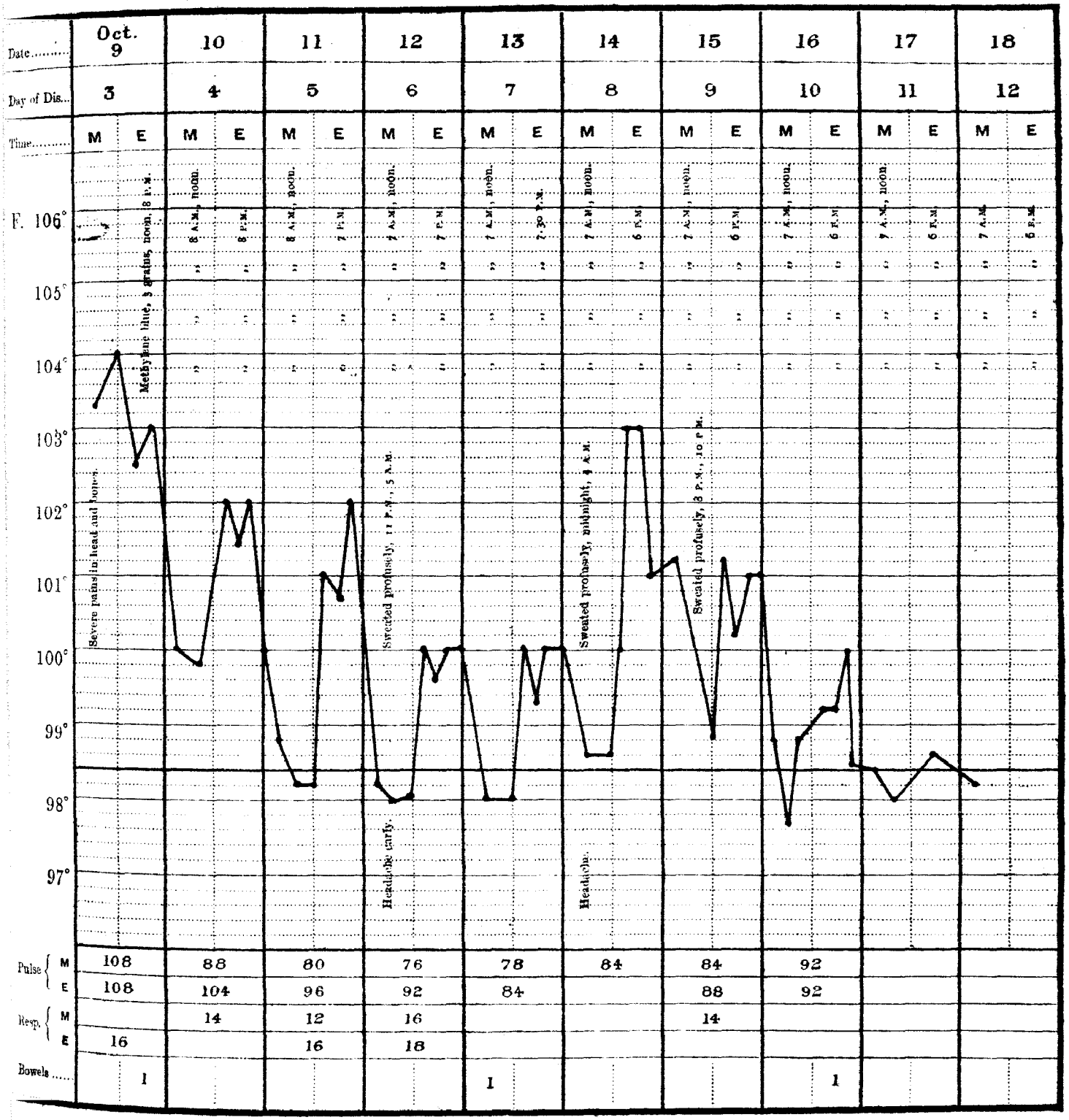
Case No. 1 has just recovered from a relapse, the study of which has yielded a good deal of further information about the second parasite. The salient symptoms are shown in the accompanying chart. Pains in the bones and head were the chief subjective symptom, and they rather suggested dengue, but, apart from the fact that this is entirely a tropical disease, the absence of any rash and the course of the temperature suffice to exclude this.

On 8th October the blood was found to be swarming with the parasite.

On 12th October a specimen of blood was taken at 6 P.M., *i.e.*, just after the first afternoon rise and fall of temperature. A large number of red corpuscles were found to contain nucleated ova (*vide A*, Fig. 2, Plate IV); by 9.30 P.M. these had all grown to the extent shown in *B* of the same figure; in these the double contour and the shape of the nearly mature parasites were clearly seen.

On 13th October a specimen of blood drawn at 6 P.M. was found swarming with free parasites, mostly of the flattened leaf-like variety. By 9.30 P.M. a large proportion of these had totally changed their appearance, become clear, globular bodies, darker than before, and of a somewhat greenish-brown colour. On casual inspection they would almost certainly be taken for normal corpuscles; on carefully focussing, however, each was seen to be covered with very

CHART Nº 6.


Date
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Time
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F. 106°
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97°
Methylene blue, 5 grains, noon, 8 P.M.
8 A.M., noon. 8 P.M.
8 A.M., noon. 7 P.M.
7 A.M., noon. 7 P.M.
7 A.M., noon. 7.30 P.M.
7 A.M., noon. 6 P.M.
7 A.M., noon. 6 P.M.
7 A.M., noon. 6 P.M.
9 A.M., noon. 6 P.M.
7 A.M. 6 P.M.
Severe pains in head and bones.
Sweated profusely, 11 P.M., 5 A.M.
Headache early.
Sweated profusely, midnight, 9 A.M.
Headache.
Sweated profusely, 3 P.M., 10 P.M.
Pulse M 108 88 80 76 78 84 84 92
Pulse E 108 104 96 92 84 88 92
Resp. M 14 12 16 14
Resp. E 16 16 18
Bowels 1 1 1

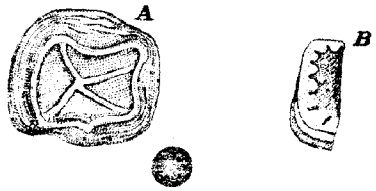


Fig. 1.

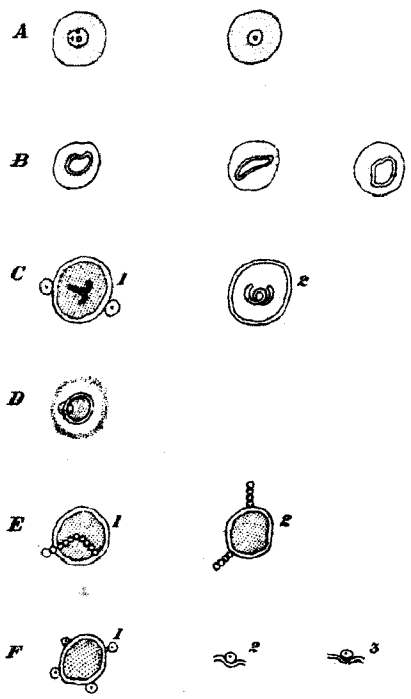


Fig. 2.

Plate IV.

Zeiss, $\frac{1}{12}$ oil immersion,

oc. 4.

minute shimmering cilia. In some (*C* 1) a dark, anchor-shaped central structure was discernible, the shape changing from time to time; and in some specimens this structure was clearly seen to be tubular (*C* 2). Many of these bodies had one or more large nucleated ova attached to them *(C, F)*, some of which seemed to be attached by a minute stalk (*F* 3). In many instances a long string of ova, in active backward and forward movement, projected from the surface, and could be followed deep into the interior (*E* 1, 2). Occasionally two such strings of ova were projected from one of the spherical bodies; each of the ova in these strings appeared as a whitish spherule, non-nucleated, until exactly focussed, when it became a minute black speck, circular or polygonal. The larger ova, which seemed to be budding from the exterior surface, were much less lively in their movements and were distinctly nucleated.

Here and there a parasite which had not assumed the clear, globular form was found to contain ova; in one such instance *(D)*, the orifice happening to be uppermost, a contained ovum was watched for some time, moving about in a large central cavity, now clearly seen through the mouth now indistinctly through the body wall, until at length it escaped through the mouth and floated away.

Fig. 1, Plate IV, shows an exquisite specimen of the *Medusa sanguinis hominis*, which I found on carefully looking over some of the preparations made of the blood from Case No. 4—preparations which until recently I had not had leisure to examine minutely. It is shaped much like a Tam O'Shanter cap, and a quadrifid body is distinctly seen inside. Its dimensions are much larger than I previously stated, from memory, being at least 16 times the size of the red corpuscle placed beside it for comparison. *B* shows the scalloped edge of the necto-calyx of another specimen. In another preparation, unfortunately spoilt by over-exposure to osmic acid vapour, the medusæ are very numerous, and being darkly stained can be readily distinguished by the naked eye.

The extraordinary likeness of the commonest form of the above-described parasite to a crenated blood corpuscle is no doubt the reason why it has so long escaped observation; but that the medusæ should also have done so can only be because no microscopist has chanced to examine the blood in a fever case at the time when they were present, seeing that they are of enormous size and that their appearance is absolutely characteristic.

DR. JAMES H. McCARTNEY'S REPORT ON THE HEALTH OF CHUNGKING

For the Half-year ended 30th September 1896.

THE health of the foreign residents during the past six months has been good. It is probably true that a great deal of the freedom from illness was due to the fact that a large proportion of the ladies and children spent the summer in the mountains near Chungking. No port on the river has mountains so near which afford such a thoroughness of change as Chungking. The height of these mountains varies from 1,200 feet to 2,500 feet, and within three days' journey of Chungking we have in Chin-fo-shan a mountain over 7,000 feet high, which furnishes an atmosphere equal to any in Japan. The thermometer never goes above 60° F., and heavy woollens must be worn on the hottest day.

During these six months no foreign resident has been confined to his room for more than two or three days.

The principal ailments were bowel troubles, due more to the indiscretion of the persons than to the climate.

During the period reported on four foreign children were born, the mothers all, with one exception, making uninterrupted recoveries, without the slightest rise of temperature. The case in question progressed favourably until the night of the 10th day, when the patient became greatly frightened during a thunderstorm, and the next morning active inflammation of both breasts came on, which would not yield to any therapeutic remedies, but rapidly went on to suppuration. After thorough incision and drainage, this case also made a good recovery.

July and August were hotter than the corresponding months of 1895. From the 1st to the 21st August there was not one day of rain, which is unusual for this time of the year, and those who wish that we could see the sun more frequently in Chungking wished that we might not see it for a while. The frequent rains during the summer months in Chungking, while causing a moist atmosphere, serve a good purpose in cooling the air, and thus render the summers more endurable than they otherwise would be. They not only cool the air but flood the streets, washing out filth which otherwise would never be removed. The city is so situated and so drained that within a few minutes after the rain has ceased the streets are dry; there is no chance for standing water. There is only one place in the city where stagnant water can be found, and that is in front of the Confucian temple—an artificial lake several hundred feet in diameter.

During the summer Chungking was visited by two or three windstorms of more than usual severity; they did but slight damage.

During July and August the mean temperature was very high—81°.9 and 84°.8 F. respectively. This was due to the extreme dryness, as no rain fell for nearly a month, which is exceptional at this time of year. September, however, furnished the greatest rainfall since the Customs has been opened.

Below is a classified list of the diseases which have afflicted foreigners who have come to my notice since the port was opened in 1891 and necessitated confinement to bed for more than a week.

Congestion of liver	2	
Dysentery	6	(2 died)
Remittent fever	4	
Intermittent fever	7	
Scarlet fever	3	
Measles	7	
Eczema	1	
Cholera morbus	4	
Asiatic cholera	3	(1 died)
Eclampsia	1	(died)

The number of births during the past five years has been 16. Children born in Chungking seem to thrive exceptionally well, while those who have come here in infancy have an especially hard time in acclimating.

During the past six months I have had under treatment a middle-aged man for cystitis. The disease (in a mild form) had existed some time before he came under my care. For over one month all the ordinary remedies, together with dieting, were tried without much effect. 5-grain doses of boracic acid three times a day were subsequently given, with immediate and marked effect. The patient has made steady improvement, and the dose has been increased to 10 grains three times a day. This one case has proved to me the great value of boracic acid internally in the treatment of cystitis.

Malaria.—This we have in all its forms, especially remittent fever, which generally is very prevalent during the spring, summer, and autumn months.

The mortality among the natives is very high, but among foreigners only a very few cases of fever have come to my notice during the past five years.

Out of many thousand fever cases among the Chinese I have not (up to date) met with any enlargement of the spleen, which has so frequently been reported in other ports on the Lower Yangtze.

During the six months nothing in the way of an epidemic has visited the natives.

The foreign residents are rapidly becoming better housed than they have been in the past, and the outlook for the improvement of the sanitary condition is better than ever before. When the members of the foreign community all get into proper foreign houses, in place of the low, damp native houses surrounded by high walls, they will have less cause for complaint of the weather and the state of their health.

The position of the Japanese Concession is all that could be desired from a sanitary standpoint; its position offers ready access for perfect drainage, within easy reach of the hills in the rear. No port on the river, with the exception of Chinkiang, affords better advantages in this direction.

The source of the water supply is as good, if not better, than any port on the river.

During the six months two new Consulates—French and Japanese—have been opened, both of which are well located from a sanitary point, with the exception that they are native buildings, and in consequence not provided with proper drains. The French compound is narrow and somewhat cramped, and the building is too low for foreign occupation. The Japanese occupy a large spacious compound, but the buildings are not well lighted, and consequently not conducive to good health.

The English Consulate is situated in a very poor part of the city from a hygienic standpoint: the compound is narrow, surrounded by high walls, poorly ventilated, and badly lighted.

Goitre cured with Inunction of Red Oxide of Mercury.—The patient, a middle-aged woman from the country, distant about 100 miles, came to the hospital with a tremendous goitre of several years growth.

The tumour, on account of its size, greatly inconvenienced her and caused great difficulty in breathing. I neglected to take its measurement at the time, but it is one of the largest I have ever seen. The woman consented to remain in the hospital for one month to see what could be done for her in that time.

Night and morning red oxide of mercury ointment was thoroughly rubbed into the tumour by a native assistant and the woman kept in the sun until the ointment had penetrated the skin. This practice was always followed by much pain or smarting over the surface which had been rubbed, sometimes almost unbearable, but the patient was willing to endure almost anything in order to be cured. At the end of the first month's treatment she had so much improved, there was no difficulty in breathing and the swelling was considerably reduced, that she decided to remain another month. From this time onwards steady decrease in the size was noticeable every few days. At the end of two months a very small tumour, about the size of a hen's egg, was left. The patient's health was greatly improved; but on account of pressing family duties, no amount of coaxing could persuade her to stop longer.

This is the only case of goitre which has presented itself for treatment in the six years that I have been in Chungking, which means that it is very rare in these regions.

Amputation of the entire Penis, together with Two-thirds of the Scrotum.—The patient, about 45 years of age, single; epithelioma of penis and scrotum. The operation was that devised by PEARCE GOULD and described by him in the *Lancet*, description of which is also given in TREVES' *Operative Surgery*, vol. ii, p. 658. In this case the scrotum was also involved, and I could not well follow out the procedure recommended in his operation. The protruding growth was removed by a circular incision, which included the anterior diseased surface of the scrotum, after which the operation was finished as recommended by Dr. GOULD. The healthy

testicles were pushed up into the abdomen and the remaining portion of scrotum doubled over on itself and its edges stitched in apposition. An elastic catheter was retained in the bladder for the first 48 hours. The scrotal wound healed by first intention, and the deeper one by granulation. The patient had no rise of temperature after the second day, and had complete control over the bladder from the first. The parts were completely healed, and the patient left the hospital within 30 days.

Resection of the Hip, with Recovery of Motion and Use of Leg.—The patient, a lad about 12 years of age, greatly emaciated and anæmic, presented himself with hip-joint disease in the third stage. A large abscess over the joint was opened and drained and the boy put on cod-liver oil and tonics, but no improvement took place in a month's treatment of this kind. I decided that the only chance for the boy was a resection. Louenbeck's operation was done, and the section was made below the trochanter major. The limb was put up in a fracture-box and extension applied. On account of the great debility of the patient a bed-sore formed within the first few days, which greatly complicated the case. Nevertheless, with careful nursing the little fellow pulled through and was able to walk with crutches within three months.

The result was all that could be expected from such an operation—about 1½ inch shortening of the leg.

Intercapsular Fracture of the Neck of the Femur.—The patient, an opium-smoker, over 50 years of age, pedlar by occupation, while passing along the street, was buried under a falling wall. When he was got out it was found that his leg was broken, and he was brought to the hospital.

The ordinary long side splint was applied, but on account of the ignorance and depraved condition of the patient he would not let it alone. Every morning on making the rounds I would find the splint loosened and the leg in the same position that I found him in. Every imaginable means was tried in order to guard his interfering with the splint. In spite of tying his hands he would manage to loosen himself, and I would find him the next morning in the same condition.

In desperation, and not caring very much what the result might be, I put his leg into a fracture-box and applied extension. The result was quite a surprise: he recovered with good use of his leg and with very little shortening.

Sarcoma of Abdominal Walls.—The patient, a man 62 years of age, tailor, opium-smoker. He first noticed a small lump near the navel several years ago, but it gave him no pain. The growth increased, although slowly, until the end of last year, when it took on active growth and commenced to give him a great deal of pain and discomfort.

Upon the advice of a native friend he came to Chungking for treatment. I wanted him to break off opium, and, after a month's proper tonic treatment, to have the growth removed. He would not hear of this and returned home. From this time the growth developed faster and gave him great pain. One month later it had grown one-third larger, so he returned to Chungking and requested me to remove it; this I did after he had given up opium. The

operation was easily done without the loss of very much blood, and the old man made a rapid recovery. The tumour weighed about 2½ lb., and presented the appearance displayed in the accompanying plate.

I am indebted to Mr. W. STEBBINS, Tidesurveyor, for the following meteorological abstract:—

METEOROLOGICAL TABLE, April to September 1896.

MONTH.	BAROMETER.		THERMOMETER.					RAINFALL.	
	Highest.	Lowest.	Dry Bulb.	Wet Bulb.	Maximum.	Minimum.	Mean.	No. of Days on which Rain fell.	Quantity.
	Inches.	*Inches.*	° *F.*	° *F.*	° *F.*	° *F.*	° *F.*		*Inches.*
April	29.68	28.86	94	83	94	58	69.8	16	3.37
May	29.77	29.02	90	81	93	60	72.8	13	6.03
June	29.50	28.94	94	83	96	70	80.9	13	7.47
July	29.34	28.90	98	89	99	69	81.9	14	9.08
August	29.44	29.05	100	85	102	69	84.8	9	9.83
September	29.55	29.10	79	77	82	65	72.1	24	10.92

DR. JOHN D. THOMSON'S REPORT ON THE HEALTH OF HANKOW

For the Year ended 30th September 1896.

GENERAL.

THE period under consideration has been remarkable for the irregular and prolonged distribution in time of certain diseases (enteric fever and small-pox), and for the prevalence in the native city of two severe epidemics at one and the same time (small-pox and typhus fever), as well as for the mortality among foreigners from these two last-named diseases. During the past summer, too, cholera has been more prevalent than usual, carried over, no doubt, from last year when it came following in the wake of disbanded soldiers and in the lines of traffic up river.

CHOLERA.

Cholera was responsible for the deaths of no fewer than six foreign adults during the months of August and September. None of these six were actually residents in the Concession. One, a missionary, died at Hsiao-kan, about 30 miles from Hankow, the body being brought here for burial. Another missionary came in from up country, was seized with cholera a few days after his arrival in Hankow, and died within 10 hours after the seizure. A third came from Mang-an-shan, a day's journey from Hankow; arrived in a collapsed state, struggled through the collapse stage, only to succumb to the stage of secondary fever (cholera typhoid). Two others were from H.B.M.S. *Firebrand*, then at Hankow. One was on the sick list suffering from diarrhœa on arrival in port, and two days later, while in hospital, he suddenly developed acute cholera, which carried him off in about 12 hours. The other was probably infected while on leave, possibly in some Chinese restaurant bordering on the Concession. The sixth death from cholera took place in Wuchang.

Of these fatal cases, I personally attended to two, the second and the third, while I saw another some time before death took place. In addition, I attended to four cases of cholera that recovered, as well as to a good many cases of choleraic diarrhœa (cholerine). Of the four that recovered, two were attacked in the same house in which one of the above fatal cases was first seen; one of these cases was very severe. A third was from the gun-boat, and the fourth was from one of the river steamers. This last patient, after struggling through a very prolonged collapse stage—kept alive, as it seemed, by repeated saline injections, at one time into a vein, at another time into the loose cellular tissue (hypodermoclysis),—suffered severely in the subsequent stage (cholera typhoid). On the fifth day of illness he passed a large quantity of blood by the rectum. Luckily, he did not see the stool, and was not alarmed by

what he did not know. An enema of chloride of calcium solution was at once administered, while smaller doses, along with digitalis and ergot, were given by the mouth. Next day patient's mind began to wander. For a few days his mental condition got worse, while physically he improved. There was no return of the hæmorrhage, his pulse improved, and he began to urinate freely. By the end of a week his mental condition also began to improve, and by the end of another week he was quite all right. A red raised rash came out all over his body, and was followed by fine desquamation of the cuticle. A similar rash and desquamation I observed in another patient, during convalescence from a very severe attack of cholera. I do not know whether to attribute this rash to a poison developed in the true course of the disease, to the saline ingredients used, to effete matters uneliminated, to absorption of secondary poison from the bowels, or to causes acting through the nervous system.

Small-pox and Typhus Fever.

Passing now from cholera to the other epidemic diseases—small-pox and typhus fever,—it must, I think, be rare, even in China, to have epidemics of two such diseases raging in the same city at one and the same time. Numbers, I am told, while convalescing from the one were attacked by, and succumbed to, the other. The mortality among foreigners from small-pox is quite exceptional, while typhus, so far as I am aware, has never been known to attack foreigners here before.

A. *Small-pox.*—In December one fatal case of small-pox (hæmorrhagic variety)—in a foreign child aged 4 years—was reported from Wu-tzŭ-miao, in Hankow city. The child had never been vaccinated. In April, May, and June there were three fatal cases of small-pox in the Concession. All were hæmorrhagic—one the variety known as "purpura variolosa," and the other two as "variola hæmorrhagica pustulosa." All three were connected with the out-door staff of the Customs; each had been vaccinated in infancy. Vaccination marks were very faint in two, not seen in the third. None of the three had ever been revaccinated.

(*a.*) The first case—"purpura variolosa"—was that of a young married woman. It began with severe headache, backache, vomiting, and high fever. The vomiting was very persistent, and by the third day hæmorrhages appeared. Profuse flooding set in. Petechiæ and large ecchymoses made their appearance here and there over the surface of the body. No white was visible in the eyes. Dark purple clots bulged out the conjunctivæ close up to the margins of the corneæ, so that the eyelids could not close. There were hæmorrhages in the tongue, tonsils, palate, and uvula. Black blood oozed from the gums and tongue, mingled with thick, slimy saliva, and dribbled continuously from the mouth. Blood was passed by the bowel, and probably also from the bladder, though, mixed with the other discharges, this could not be separately distinguished. By the close of the third day after the hæmorrhagic symptoms developed, the eyelids, the lips, the tongue, and the roof of the mouth were almost black; the fœtor of the breath and the smell from the surface of the body generally were particularly sickly, heavy, and oppressive. A little tumultuous action of the heart, a slight clouding of the intellect, and then death quietly closed the scene before the opening of the fourth day of the hæmorrhage and the sixth of the illness.

(*b.*) The second case—a married woman of over 50 years of age, living in the same terrace as the first—took ill about 12 days after the first was removed to hospital. The initial symptoms were also marked: fever was high; headache, backache, and vomiting were severe. Soon ecchymoses, like large bruises, appeared on the thighs and legs, also, to less extent, on the upper extremities and trunk, while the rash also began to show. The skin over the face, neck, and chest rose *en masse*, and some days later, when the vesicular stage was at its height, the face, neck, and thorax were completely encased as in a mask and cuirass. The hands and feet were also completely covered, while on the abdomen and thighs the vesicles had run together into clumps, leaving here and there some free skin, where at places subcutaneous hæmorrhages could be seen shining through. Hæmorrhages now began to appear in the fully developed pocks on the lower extremities, and also here and there over the rest of the body. The nostrils were completely obstructed; breathing was laboured, and rendered more painful by constant hawking efforts to get rid of tenacious mucus from the throat. Up till the 11th day the patient's strength seemed to be well maintained, when, rather suddenly, præcordial distress and tumultuous action of the heart came on and threatened life. The first attack passed off, to be followed however by others. Profuse tarry and grumous diarrhœa set in, and the patient rapidly sank, and died on the evening of the 12th day of the disease.

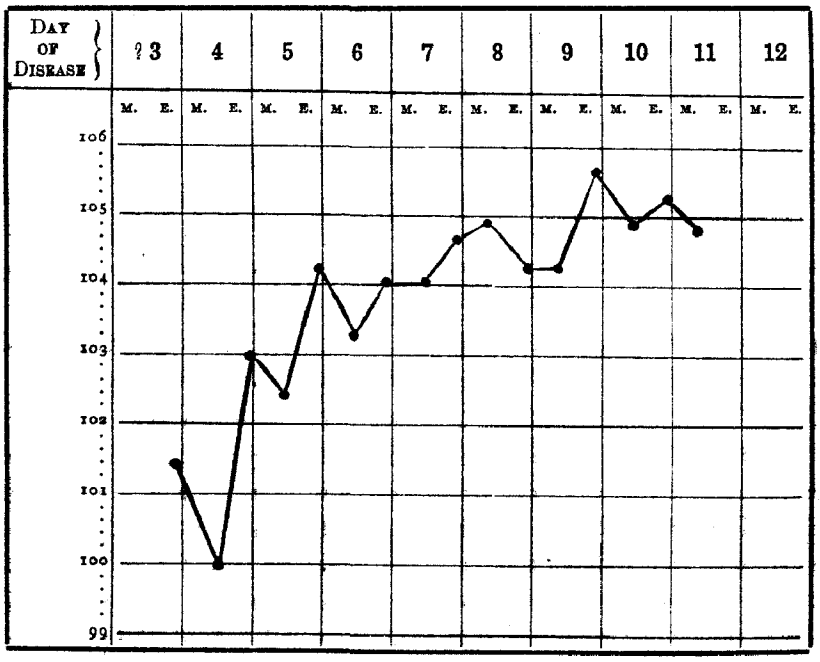
(*c.*) The third case was that of a young man in the out-door staff of the Customs who had just been transferred from Shanghai to Hankow. Allowing for the ordinary incubation stage, this patient must have caught the infection before he left Shanghai. With the exception that large bullæ developed on the feet, shins, hands, and wrists, the particulars of this case are very similar to those of the last one and need not be separately described. Death took place at the same stage of the disease (on the 12th day) and in much the same way, being preceded by profuse diarrhœa, at first tarry, then grumous and slimy, by tumultuous action of the heart, violent palpitation, and præcordial distress.

This last case began on the 13th and terminated on the 25th June. In past years we counted on small-pox being over by the middle of May, and if there were cases then they were generally mild. Possibly in the Chinese city the winter clothes were in use longer, owing to the comparatively cold spring, and the rains about the end of May and beginning of June may have caused the natives to huddle together in-doors more than usual at this season, and thus kept the disease going. In Wuchang city there were cases right on till the end of June.

In addition to these three fatal cases, other three cases of small-pox were treated in the small-pox wards for foreigners during the period under consideration. Two of these came from Hanyang. All three were mild discrete cases, and all did well. It is arranged that these wards, while efficiently ventilated, shall receive only red light, and as in each case the patient was admitted either at the very commencement of the eruption or before the eruption appeared, the effect of excluding white light could be observed. Though, strictly speaking, white light was not always absolutely excluded from the room, yet no direct rays fell on the patient, and in no case, not even in the fatal cases recorded, did suppuration take place. In the two last-described fatal cases the time for suppuration setting in had passed, the pocks had begun to dry

up in some places, and, though death was not averted, the discomfort of the patient was not added to by suppurating sores. In the milder cases salol was given, more with the idea of lessening or preventing irritation of the skin than as a general disinfectant. The pocks at the same time were kept saturated with carbolic oil. In the severer cases, as it has been said (ORY'S observations, quoted in BYRON BRAMWELL'S *Atlas of Clinical Medicine*, vol. i) that cocaine given internally (10 drops of a 5 per cent. solution four times a day) has a specific action in arresting the development of the eruption and restraining the pustulation process, this treatment was adopted. I cannot say that it had any influence in arresting the development of the eruption, though it seemed to ease the throat symptoms, and may have aided in restraining the pustulation process. Iron and digitalis were given, also chloride of calcium and ergot, to try to arrest hæmorrhage in the case "purpura variolosa."

B. *Typhus Fever.*—The first case of typhus in a foreigner that has come under my observation in Hankow occurred in May. As has been said, small-pox and typhus fever were both raging in the Chinese city at that time. The case alluded to was moderately severe, and the patient recovered. Shortly before this, however, the death from typhus fever of a highly respected missionary—a gentleman of some 30 years' residence in the East—had been reported from the Wesleyan Mission at Wu-tzŭ-miao, in the native city. Next, in the beginning of June, two doctors of the London Mission were simultaneously stricken down with typhus. These came under my care. Dr. HODGE, of the Wesleyan Mission, visited them also on several occasions along with me. They got the disease from some patients they had taken into the London Mission Hospital for treatment. Both cases were severe. One, the younger and apparently the stronger patient, died; the other recovered. Below is temperature chart of the fatal case, representing the temperature as taken in the axilla.



Sun.

Three adults died in port from "heatstroke"—one on the 30th July, another on the 5th August, both on board ocean-going steamers. The former case I did not see; the latter I saw for about five minutes before death took place. Patient (steward on board) had been found in his cabin unconscious. When I saw him he was livid and pulseless, and his respirations were already reduced to gasps. The steamer had an iron deck and only a single awning. The third case was that of a gentleman who had undergone hardship and had been exposed to the sun on his way to Hankow. Cold baths reduced his temperature for a time. He lived over a week; but the external temperature keeping continuously high night and day, he at last sank into a state of stupor, muscular tremor and twitchings developed, he became comatose, and died.

Failing a cool hill-station to which such cases could be sent while yet there is time, the only means, it seems to me, of saving such would be to have a room connected with a refrigerator, where the temperature could be gradually lowered and the atmosphere kept fresh and cool.

Several cases of "heat exhaustion" came under my notice during August. One infant, about six weeks old, died of enterocolitis during the hot weather.

It may be mentioned that the thermometer kept high, and the barometer fairly low, from the 28th July till the 17th August. The prevailing breeze, when there was any, was from the south (S.W. or S.E. quadrants)—a hot wind with the foul air of the native city as the latest addition to the impurities it brings us. It was during this period that the deaths from "heatstroke" and most of the cases of "heat exhaustion" occurred.

Dysentery.

As is usual in August, September, and October, there have been a few cases of acute and subacute dysentery. There have been no deaths from this cause. The subacute cases are usually the most troublesome, in that they show a tendency to drag on and become chronic.

Enteric Fever.

While, as mentioned in my last Report, we passed unscathed, so far as enteric fever was concerned, through the months of July, August, and September 1895 (the months in which enteric has usually been most prevalent), we had in November of the same year three cases of that disease in the Concession. One of these was fatal, and so severe as to merit the term "fulminant," this term being applied to cases of exceptional severity in other diseases; *e.g.*, "fulminant small-pox," "fulminant scarlet fever," etc. A similar case, with autopsy, was related in the account of enteric fever given in my last Report. In each case the patient was overwhelmed, as it were, by the intensity of the poison. The terrible severity of these cases (as in other diseases) may be due to the introduction into the system of an exceptionally large dose of a very intense virus, or to the peculiar susceptibility of the patient (naturally or at the time), or to these causes combined.

With regard to the rise and fall of the river, which represents the rise and fall of the subsoil water in the Concession, it may be stated that up till the 24th August the river rose;

from the 24th August till the end of September there was a steady fall of 9½ feet. In October there was a slight dip, followed by a rapid fall of 12 feet during the first three weeks of November. In considering any apparent anomaly in the incidence of enteric fever, however, sanitary changes must not be omitted. The necessary interference with the soil, the cutting off of the old drains, in the work resumed in September, may have something to do with the appearance of enteric fever late in the season.

Sanitary Improvements.

A system of surface drainage, approved of in 1893, was begun to be constructed in November 1894 and was completed in July 1896. The old underground system has been entirely removed, and V-shaped surface drains have been constructed throughout the Concession. Low-lying lots have been raised, roads raised and remade, and levels readjusted. The old connecting underground drains in the various lots have already (with one or two exceptions) been taken up, and fresh surface connexions made with the new system. These old underground connexions were in some instances in a filthy state. In two lots old cesspools were discovered, and in others, drains ending blindly and leaking along their whole lengths. The main sewer had been well constructed, and not a trace of leakage could be discovered from it. The fall, however, was insufficient, and some of the tributary drains were so blocked that no end of flushing could have cleansed them. The new surface drains have been constructed of brick, laid in solid cement and lined by fine Portland cement, floated and tarred. The weak point in construction seems to be that so much depends on this lining of cement and tar. Should this veneer give way, the comparatively porous bricks would soon get saturated and become offensive. An attempt was made, I believe, to get solid concrete troughs—like half those egg-shaped concrete pipings now made for sewers—constructed, but this apparently could not be accomplished, so we have just to trust to the veneer of cement and tar. The work, however, has been well done, and so far it has shown little liability to give way.

The following is a short report by Inspector Miller, in charge of the practical sanitation of the port:—

"The first section of the surface drains was made during the months of November and December 1894 and January and February 1895. The remaining sections were begun in September 1895 and completed in July 1896. The underground drains were taken up between the 27th December 1895 and the 18th January 1896.

"Night-soil is removed nightly; and since January 1896 the ashes, garbage, etc., from compounds have been removed nightly, instead of daily, as was formerly the custom.

"A staff of coolies is employed for keeping the drains clean. They sweep them out twice daily, and wash them out when it is considered necessary."

At the present moment, then, there is probably no port in China where sanitary matters receive so much attention and to such purpose as they do in Hankow. No doubt we are at a great disadvantage as regards our site (*see* my last Report); and waterworks will be the next consideration. Dairy and laundry, too, under foreign supervision, have still to be established on firmer bases than heretofore.

Surgical Cases.

The following are selected from a large number of surgical operations performed by me at the Roman Catholic Mission Hospital during the period under consideration.

1. *Abscess of the Liver.*—This case is selected as one of a class that may any day confront us here in China, while rare enough to foster a belief that special instruments and special facilities are required for the operation. In February A. E. L., aged 32 years, from one of Her Britannic Majesty's ships, was sent to hospital with acute hepatitis and suspicion of abscess. After full doses of chloride of ammonium, his temperature, which had been from 100° F. to 102°.5 F. in the morning and from 102° F. to 103°.5 F. in the evening, fell to normal in the morning and 99° F. to 100° F. in the evening. Acute pain also disappeared, while a localised tenderness remained. The spot most tender on palpation was selected: a good-sized aspirating needle was introduced and pushed steadily onwards in the direction in which abscess was suspected. When at a depth of from 2½ to 3 inches from the surface pus welled up. Patient was now prepared for operation. The point aspirated was between the 7th and 8th ribs, near the anterior axillary line. A somewhat curved incision, of about 1½ inch in length, was made over the 8th rib, with its centre opposite the point that had been aspirated. The intercostal muscles were next divided close to the upper margin of the rib. The aspirating needle was now reintroduced, to act as a guide to the abscess cavity. A small bistoury was passed along the side of the aspirating needle to slit the liver capsule and allow of the introduction of a long fine sinus forceps. On opening the blades of the forceps pus welled out, and when the flow had entirely ceased, the finger—the most delicate of all sounding instruments—was carefully introduced to ascertain the size and lie of the cavity. This having been done, a good-sized thick rubber drainage tube was then placed with bevelled end well in the cavity. Double cyanide gauze dressing was then applied, and supported by a broad binder firmly and evenly applied. Next day on removing the dressing only serous discharge was seen to have taken place, the lumen of the tube was seen to be free, and fresh dressing was applied without further interference. On the third day the cavity had contracted so that its walls impinged on the end of the tube, causing a sharp pain on attempts at movement on the patient's part. The tube was shortened, with complete cessation of pain on movement. On the following day it was further shortened, and by the end of the first week it was entirely removed, there having been practically no discharge after the second day, and then it was only serous. By the end of another week the wound was all but healed. The patient was allowed up, and on the last day of the third week after operation he returned to his ship and to light duty with his wound completely healed and feeling perfectly well.

2. *Ovariotomy.*—Patient, a Chinese woman, 33 years of age, was married, but had had no children. In this case I received valuable assistance from Dr. Hodge and Miss Lister, both of the Wesleyan Mission, as well as from the hospital Sister who nursed the patient after the operation. The tumour was a multilocular one, and was partly solid. The abdominal incision had to be continued round the umbilicus to facilitate the delivery of the solid part of the tumour. The pedicle was ligatured with strong prepared silk. The "toilet of the peritoneum" was performed in the usual manner, warm boiled water in which a little boric acid had been

dissolved being poured in and out to facilitate cleansing, as well as for its stimulating effect on the patient. The abdominal wound was closed with silkworm gut; and as the case had been complicated by ascitic fluid of a thick glairy nature (probably caused by the bursting of a thin walled surface cyst some time previously), I introduced a glass drainage tube into the lower angle of the wound, having first, however, placed in position a silkworm gut ligature ready to be tied should the tube prove unnecessary. Next day the lower part of the dressing was partially removed to expose the tube: no discharge had taken place, though the lumen of the tube was proved to be free. The tube was therefore withdrawn, the ligature lying in place was tied, and the dressing was replaced. The patient recovered without a bad symptom; and when, 10 days later, the dressing and stitches were removed the wound was found to be completely and firmly healed. Even where the tube had been only a linear scar was to be seen, so that its presence in the lower angle of the wound for about 20 hours after operation in no way interfered with the healing of this part. Three weeks later the patient returned home feeling perfectly well, wearing as a support an abdominal belt fitted and made for her by the hospital Sister.

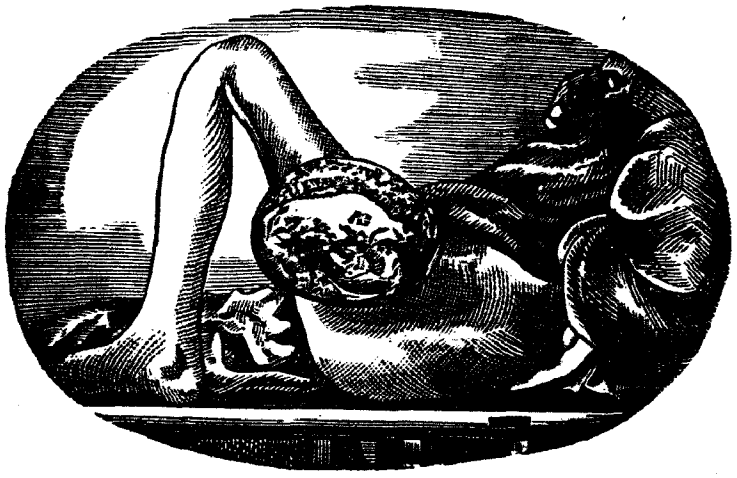
3. *Samples of Large Tumours: Two Cases illustrated.*—(*a.*) Woodcut No. 1 (reproduced from a photograph) represents a large solid tumour springing from the neck, with its base extending on all sides beyond the anterior triangle of the neck. It is seen to be quite as large as the patient's head. Patient carried it suspended in a sling from the shoulder. When

No. 1.

No. 2.

removed it weighed 11 lb. 7 oz. It had been growing for nearly 20 years, though the bulk of its growth took place during the past 18 months, and was evidently sarcomatous. In removing the tumour three skin incisions, each 9 or 10 inches long, corresponding to the three sides of the pedicle, were made. By doubly ligaturing some of the larger vessels and cutting between the ligatures, and by the use of long and strong pressure forceps during the operation, very little blood was lost. The patient sat up to meals next day. On the sixth day after operation he walked outside in the hospital grounds; and within three weeks he left with the wound completely healed and glad to be rid of his burden. Woodcut No. 2 is a reproduction from a photograph taken 16 days after the operation, and shows only a slight fulness remaining—the flaps not yet fully contracted.

(*b.*) The next case (woodcut No. 3, also traced from a photograph) is a large ulcerating tumour situated on the outer and anterior aspect of the upper half of the left thigh.



No. 3.

The discharge was extremely offensive. The patient in this case had been to another foreign hospital, and the surgeon there would not undertake to operate unless the patient would consent to amputation at the hip-joint, should this be deemed necessary in the course of operation. I examined the tumour, and satisfied myself that the femoral vessels were free and that the tumour could be removed without danger of sacrificing the limb. I communicated with the surgeon who had previously seen the patient, but he left the case to me. The patient was then prepared for operation. An elastic band, applied in "figure of 8" fashion round the pelvis and encircling the limb at its very root, with the neck of the "8" drawn well up with a hook, completely controlled hæmorrhage, while it left the area of operation quite free. As I expected, the femoral vessels were entirely free. The tumour was freely and cleanly removed, the tensor vaginæ femoris muscle coming with it, and the upper halves of the vastus externus and the rectus femoris being cleanly dissected in the process. As there was not skin to cover the whole surface, a goodly portion had to be left to granulate over. From the day of the operation the patient's health (as was to be expected after the removal of such a foul mass) began to

improve. The wound healed very kindly; and six weeks after the operation the patient left hospital walking on a sound limb, and quite plump as compared to what he was on the day he was carried in.

4. *Suture of Clavicle.*—About a month before admission on 20th May the patient, a Chinese married woman, aged 32 years, in dispute with her husband, sustained a fracture of the left clavicle just inside the coracoclavicular ligament. The outer end of the long inner fragment was now projected through the trapezius muscle behind and had almost pierced the skin. The shoulder was depressed, and the arm hung quite useless by the side. In a very short time the skin over the projecting end of bone would have sloughed or ulcerated through, and other troubles would have followed. Having been prepared for operation, the patient was anæsthetised, and a long horseshoe-shaped flap, with apex from point of shoulder and base well behind the site of fracture, was dissected up. The end of the inner fragment was freed from the trapezius, the outer fragment was exposed, the broken ends were rawed, the rawed ends brought into position and sutured together with strong silver wire. The flap was then replaced and stitched in position. No drainage tube was inserted, but double cyanide gauze dressing was firmly and evenly applied. All went well. The dressing was renewed on the following day, and was not again disturbed for 10 days, when the wound was found to be firmly healed. The arm was kept in a sling for some time longer. The contour of the shoulder was all that could be desired, and the patient regained perfect use of her arm.

DR. E. H. HART'S REPORT ON THE HEALTH OF WUHU

For the Half-year ended 30th September 1896.

THE longer one lives in a port like Wuhu the more strongly is he convinced that there is something radically wrong in the situation of the Custom House and Assistants' quarters—*i.e.*, from a sanitary point of view. When the present condition of things is changed I hope to be able to present a more favourable report upon the health of the Customs staff.

The present sanitary arrangements are very bad indeed. Foul-smelling drains winding through the filthy streets of Wuhu unite above the Custom House and empty their vile contents into the Yangtze at high water, while at low water they meander slowly over the muddy embankments and river bed, giving out their pestilential odours and malaria microbes, which float gently into the quarters occupied by the Assistants and out-door staff, where they are readily absorbed by the occupants, who are all in good condition to take into their systems every germ that floats about.

There are no facilities for cleansing the drains in the neighbourhood of the Customs quarters, and should there be they would not prove of much value, excepting, possibly, to keep the outlet clean, while the sewerage from the native city would continue to travel as before.

The great need of this port, as I called attention to in my previous Report, is a foreign Settlement where all the sanitary arrangements would be under proper Western supervision.

There is a tract of land which was laid out at one time to be the British Concession. This land, which is of considerable commercial value, would make a splendid Settlement; on the plain the godowns and shipping offices could be built, while residences might be put up on the adjacent hills.

If foreigners are to be continued in the employ of the Imperial Customs Service, the first consideration should be the building of suitable dwellings free from contaminating influences which affect one so readily, morally as well as physically. When one takes into consideration the fact that only two members of the staff have been free from sickness during the period under review—six months,—it behoves those who have charge to see to it at an early date that the exciting causes of the various disorders be done away with as soon as possible, in order to insure better health, save valuable lives, and guarantee to the Service a more effective staff—from a hygienic point of view. Most of the disorders treated have been in a large measure due to local conditions, such as malaria, diarrhœa, ulcerative tonsillitis, chronic catarrhal bronchitis, insomnia, etc.

The health of the community aside from the Customs has been comparatively good, on account of the more healthful location of their dwellings, which in every case is upon high

ground which is easily drained and where fresh air abounds. It is true that I have had a large number of sick on my list, but most of these have been visitors who have spent the summer at their various stations, absorbing malaria and kindred disorders, and have come here for a rest and change—not that Wuhu is a health resort, but on account of its being the nearest port.

One potent factor as the cause of disease in this port is the lack of exercise; but one can hardly blame many for not taking the necessary amount daily, owing to the foul-smelling and filthy streets one has to travel through before he can get out into the fresh air, and when he returns to his quarters he feels that his time and energies have been wasted and that no benefit has been derived from the outing.

During the six months under review there have been five births—all girls—and three deaths.

The first death was due to a lesion of the brain. No autopsy was made, unfortunately, owing to various objections—not on the part of the medical officer, however.

The second was that of a Roman Catholic priest who had returned from the country and was seized with heat apoplexy, from which he died.

The third was due to malarial poisoning culminating in a congestive chill, followed by a very rapid and high range of temperature—111° in the axilla.

The following is a list of the diseases treated in this port during the last six months:—

Alcoholism.
Ascaris lumbricoïdes.
Bronchitis, acute capillary.
„ chronic catarrhal.
Carbuncles.
Conjunctivitis, catarrhal.
Constipation.
Continued fever.
Dermatitis.
Diarrhœa, choleraic.
„ dysenteric.
„ infantile.
Erysipelas.
Gastro-intestinal catarrh.
Heat apoplexy.
Hepatic congestion.
Insomnia.
Intermittent fever.
Laryngitis.
Measles.
Menorrhagia.
Nephritis, chronic parenchymatous.
Nervous prostration.
Neuralgia, facial.
„ intercostal.
Pharyngitis.
Phthisis pulmonalis.
Prolapsus uteri.
Pruritus vulvæ.
Purpura hæmorrhagica.
Rheumatism, articular.
Sprained knee.
Tinea circinata.
Tonsillitis, follicular.
„ ulcerative.
Typhoid fever.
Ulcer leg.

The above list shows that 37 different disorders have been treated. 32 members of the Customs staff,* and 33 transients and residents aside from the Customs, have been sick.

* This includes wives and children.

The summer was one that tried all who remained in port; nearly everyone was in a run-down condition. The heavy rains of May, June, and July were followed by great heat during the latter part of July and the first three weeks of August, when, fortunately for the residents, the weather changed, the days being warm and nights cool, so that all were able to obtain the necessary rest.

The summer, though trying to many, has been free from epidemics, the coffin-makers complaining that it was a very dull season.

I enclose a meteorological report, which has been kindly furnished to me by the Harbour Master, Mr. A. W. KINDBLAD.

METEOROLOGICAL TABLE, April to September 1896.

MONTH.	BAROMETER.			THERMOMETER.			RAINFALL.	
	Highest.	Lowest.	Mean.	Highest.	Lowest.	Mean.	No. of Hours.	Quantity.
	Inches.	*Inches.*	*Inches.*	° *F.*	° *F.*	° *F.*		*Inches.*
April	30.350	29.650	30.015	95.0	39.0	59.0	115	5.32
May	30.342	29.712	29.978	93.0	50.0	69.0	104	8.01
June	30.150	29.612	29.824	96.5	54.0	76.0	82	11.63
July	29.954	29.482	29.760	101.0	68.5	82.0	88	13.52
August	30.000	29.700	29.850	101.0	70.0	85.5	22	3.19
September	30.162	29.700	29.973	93.0	63.0	76.0	65	2.06

DR. ALFRED HOGG'S REPORT ON THE HEALTH OF WENCHOW

For the Half-year ended 30th September 1896.

THE health of the foreign community, as well as of the Chinese, has been fairly good during this half-year, and there have been very few cases of any serious import. The weather for a large part of the time was rainy, and the summer was cooler than for several years past. Fortunately, too, the city has not been visited by cholera this summer, and as yet no case of it has come under my notice, though attacks of diarrhœa have been common, as usual.

There have been no deaths; but one birth occurred—a male, large and well developed. There was excess of liquor amnii, which, coupled with the large size of the infant, induced severe postpartum hæmorrhage, owing to uterine inertia and retained placenta. This was controlled, however, by injections of hot water, and ergot internally, and the mother rallied quickly afterwards.

An elderly member of the Customs staff suffered severely from a hot burst in June, showing symptoms of heat apoplexy, and had to be ordered away to a cooler spot during the summer months.

While the s.s. *Poochi* was in port the captain and officers, along with the steward and table "boys" and two members of the Customs staff who had been dining on board, were all variously seized with fever, or diarrhœa, or both. It was a week before two of them recovered. The cause was strongly suspected to be due to some ice-cream which had been partaken of on the previous day.

Among the cases treated have been:—

Malarial fever.	Rupture of cornea.
Diarrhœa.	Incipient typhoid.
Gastritis.	Stomatitis.
Conjunctivitis.	Laryngitis and pharyngitis.
Interstitial keratitis.	Asthma (spasmodic).

There have also been large numbers of Chinese treated at the dispensary of the Methodist Mission.

For the meteorological table I am indebted to Mr. BENSON, Harbour Master.

METEOROLOGICAL TABLE, April to September 1896.

MONTH.	BAROMETER.		THERMOMETER.		RAINFALL.	
	Maximum.	Minimum.	Maximum.	Minimum.	No. of Days.	Quantity.
	Inches.	*Inches.*	° *F.*	° *F.*		*Inches.*
April	30.280	29.640	78	51	15	5.04
May	30.266	29.650	88	60	17	3.74
June	30.080	29.594	93	66	15	12.47
July	29.986	29.460	93	73	13	12.93
August	30.064	29.700	94	77	8	4.34
September	30.200	29.830	93	72	12	1.77

RAPPORT MÉDICAL

DU 1ER JUILLET 1895 AU 31 MAI 1896, SUR LA SITUATION SANITAIRE DE LUNGCHOW,

Par le Docteur J. J. DELAY.

CLIMATOLOGIE.

L'ÉTÉ de 1895 a été marqué dans la région de Longtchéou (Lungchow), comme dans les régions voisines du Tonkin, par une sécheresse exceptionnelle. Le nombre des journées pluvieuses, qui pour la période correspondante (mai, juin, juillet, août, septembre) de 1894 s'était élevé à 96, n'a été que de 59 et la quantité d'eau tombée a été très-peu abondante. Le fleuve Sikiang, qui l'année précédente avait eu des crues de 8 mètres, ne s'est élevé que deux fois à 1 mètre et 1 mètre ½ au-dessus des plus basses eaux. La saison présente ne s'annonce pas comme devant réaliser les mêmes conditions. À la suite de fortes pluies survenues vers la fin de mai, une crue passagère d'environ 6 mètres a déjà été observée.

La température moyenne des cinq mois de la saison chaude a été exactement la même que celle des deux années précédentes (27°.5 centigrades). La moyenne des trois mois d'hiver (décembre 1895, janvier et février 1896) a été de 16°.7.

Les journées les plus chaudes ont été celles du 1er juillet 1895 et des 26 au 31 mai 1896 (35° centigrades). Le minimum observé a été de 7° le 16 février 1896.

Les pressions barométriques extrêmes ont été de 774 millimètres le 15 février 1896 et de 746 millimètres 5 le 29 juillet 1895.

Pour l'année complète de 1895 la moyenne de la température, qui avait été de 22°.5 en 1893 et de 22°.7 en 1894, s'est élevée à 23°. La pression barométrique moyenne a été de 760 millimètres.

RELEVÉ DES OBSERVATIONS MÉTÉOROLOGIQUES du 1er Juillet 1895 au 31 Mai 1896.

MOIS.	TEMPÉRATURES MOYENNES.			PRESSIONS BAROMÉTRIQUES MOYENNES.	JOURNÉES PLUVIEUSES.	ORAGES.	VENTS DOMINANTS.	AUTRES OBSERVATIONS (Hauteur des Eaux du Fleuve).
	Maxima.	Minima.	Moyenne du Mois.					
1895.	° C.	° C.	° C.	*Millimètres.*				
Juillet	31.1	25.4	28.2	753.8	15	4	S. et S.O.	Crue de 1 m. environ.
Août	30.1	24.6	27.3	754.6	13	5	S.O.	
Septembre	31.4	24.5	27.9	758.0	4	...	N. et N.E.	
Octobre	27.5	23.1	25.3	761.6	18	1	S.O.	Crue de 1 m. 50 environ.
Novembre	24.3	16.2	20.2	766.3	1	...	S.O.	
Décembre	20.2	16.6	18.4	766.7	11	...	S.O. et N.E.	
1896.								
Janvier	20.3	15.4	17.8	765.8	9	...	S.E. et N.E.	
Février	15.3	12.5	13.9	766.5	12	...	S.O.	
Mars	18.8	15.3	17.0	762.8	18	3	S.E. et O.	Crue de 1 m. environ.
Avril	27.5	22.8	25.1	759.0	16	7	S.	
Mai	30.2	24.1	27.1	759.5	12	1	S. et S.O.	Crue de 6 m. environ.

ANALYSE DES EAUX DE LONGTCHÉOU.

Je crois devoir indiquer ici le résultat de l'analyse des eaux du Songkikong (rivière de Langson), du Songbang Giang (rivière de Caobang) et du fleuve Sikiang que M. le Pharmacien de la Marine BAILLET a bien voulu faire sur ma demande au laboratoire de l'hôpital de Haiphong.

La prise d'eau avait été faite au moment des plus basses eaux.

"Eaux claires, limpides, sans odeur d'ammoniaque ni d'acide sulfhydrique, contenant un légèr dépôt.

	Degré hydrotimétrique.	Matières organiques (par Litre). Réduction par le Permanganate de Potasse.
		Milligrammes.
Eau du Sikiang	8	9
„ Songkikong	7	9
„ Songbang Giang	8	10

"Les sels sont surtout des sels de soude, de potasse et de chaux. Pas de chlorures.

"Le dépôt contient quelques microbes (micrococci). L'eau du Songkikong donne peu de microbes, mais contient des algues microscopiques qui ont pu se développer depuis la prise d'essai.

"En résumé, ces eaux seraient bonnes, si elles ne contenaient pas une aussi grande quantité de matières organiques. Très-potables après ébullition."

PATHOLOGIE (MALADIES OBSERVÉES ET TRAITÉES).

Européens (effectif moyen = 7).

Fièvre paludéenne intermittente . .	14	Diarrhée	2
„ „ rémittente . .	1	Furoncles et lymphangite	1
Congestion du foie	1		

Ce sont toujours les affections palustres qui sont les plus fréquentes. Mais à part un cas assez sérieux de fièvre rémittente observé à la fin de janvier 1896, les accès ont présenté peu de gravité.

Des conditions climatériques exceptionnelles ont rendu particulièrement pénible l'été de 1895 et la plupart des Européens ont été plus ou moins fatigués.

Indigènes.

Pathologie interne.

Maladies épidémiques :—		Fièvre palustre	36
Peste (un cas traité—décès) . . .	1	Orchite paludéenne	1
Varioloïde	1	Bronchite simple	12

Pleurésie	1	Cirrhose du foie et ascite	1
Broncho-pneumonie	1	Hypertrophie de la rate	2
Pneumonie	1	Néphrite albumineuse	4
Tuberculose pulmonaire	8	Rhumatisme articulaire aigu ou chronique	15
Affections du cœur	1	Névralgies diverses	4
Stomatite simple	2	Hystérie (avec paraplégie)	1
Diarrhée	8	Myélite chronique	2
Dysenterie	9	Paralysie infantile	1
Ictère simple	1	Cachexie opiacée	1
Congestion du foie	1		

Pathologie externe.

Coup de feu de la main droite ayant nécessité la désarticulation de l'annulaire	1	Kyste tendineux du poignet	1
		„ sanguin de la région hyoïdienne	1
		„ de l'ovaire	1
Coup de feu de la région scapulaire postérieure	1	Cystite et rétention d'urine	1
		Hemorrhoïdes	1
Plaie de l'abdomen par instrument tranchant (tentative de suicide)	1	Fistule anale	2
		Hémorrhagie chez un hémophilique	1
Luxation du coude	2	Otite externe—obstruction de la trompe d'Eustache	3
Ulcères et plaies diverses	7	Conjonctivites simples	13
Contusions et plaies contuses	7	„ granuleuses	1
Abcès divers	13	„ purulentes	2
Panaris	1	Kératites	7
Ostéite du sacrum	1	Iritis (syphilitique)	1
Lymphangite	3	Staphylome opaque de la cornée	1
Adénite cervicale chronique	2	Ptérygion	3
Epithéliome de la langue	1	Entropion	1
Lupus de la face	1	Rétinite pigmentaire	1
Kyste du sourcil	1		

Maladies cutanées et vénériennes.

Gale	6	Uréthrite	3
Herpès circiné	3	Chancres simples	9
Acné	1	„ et bubons suppurés	11
Eczéma	8	Chancre induré	1
Psoriasis	4	Syphilis secondaire	4
Urticaire	1	„ tertiaire	6
Lèpre	2		

Accouchements 5
Vaccinations pratiquées avec succès 34

OBSERVATIONS.

Je n'ai rien à ajouter à ce que j'ai dit dans mon rapport de l'année précédente au sujet des conditions d'hygiène et de salubrité de la ville de Longtchéou, qui sont demeurées absolument les mêmes, c'est-à-dire très-défectueuses.

Cette année encore, la peste a fait quelques victimes dont je ne puis évaluer le nombre. Mais les cas ont été isolés, bien moins nombreux que l'an dernier, et la maladie n'a pas présenté de caractère épidémique.

Des cas de variole ont été également signalés en assez grand nombre.

Les affections que j'ai eu l'occasion d'observer et de traiter chez les Asiatiques sont aussi variés que nombreuses. Malheureusement, le manque d'aides et d'installation m'interdit toute opération un peu difficile ou demandant des soins consécutifs sérieux et suivis, et je dois me borner à la pratique de la chirurgie d'urgence.

J'ai eu l'occasion d'intervenir dans cinq cas d'accouchements: un normal et quatre dystociques. Ces derniers se ressemblent à peu près tous, au point de vue des symptômes présentés et de la facilité avec laquelle la guérison a été obtenue, en dépit des conditions déplorables de l'intervention, au point de vue de l'antisepsie et de l'hygiène.

Chaque fois, je me suis trouvé, souvent la nuit dans d'infects taudis, sans air ni lumière suffisante, où je pouvais à grand peine obtenir un peu d'eau, en présence de femmes très-affaiblies, chez lesquelles le travail était entravé depuis plusieurs jours par une inertie complète de l'utérus. L'une d'elles présentait des crises éclamptiques violentes. Sauf dans un cas, l'enfant avait cessé de vivre. La tête étant à la vulve ou peu élevée, les applications du forceps furent assez faciles, mais l'extraction, par contre, fut parfois laborieuse. Ce qui augmentait les difficultés, c'est que j'étais absolument sans aide, les seules personnes présentes se réduisant à deux ou trois matrones affolées et incapables de rendre aucun service utile.

Il n'est pas surprenant que, dans ces conditions, je n'aie pu éviter chaque fois une déchirure assez étendue du périnée, sans rupture toutefois de la cloison recto-vaginale. Dans deux cas j'ai appliqué des points de sutures. Mais, soit que l'opération n'ait pas été pratiquée d'une manière satisfaisante, ce qui est fort possible dans les conditions indiquées, soit par suite de l'indocilité des opérées, la réunion immédiate n'a pu être obtenue. Cependant, la cicatrisation s'est effectuée par granulations au bout d'un temps assez court. Il en a été de même pour les autres malades, qui, une fois délivrées, ont refusé des soins consécutifs et se sont néanmoins parfaitement rétablies. Ces faits semblent confirmer ce principe, admis par un grand nombre d'accoucheurs, mais pourtant quelquefois contesté, que "toute lacération qui ne sépare pas complètement le sphincter anal peut guérir sans traitement chirurgical."

LA MÉDECINE EUROPÉENNE À LONGTCHÉOU.

En terminant, je crois devoir signaler la confiance de plus en plus grande que témoignent les habitants de Longtchéou à la médecine européenne. Les indigènes, naturellement hostiles à tout ce qui est étranger, en arrivent cependant à modifier peu à peu leurs idées à ce sujet et viennent en grand nombre demander des soins, même pour leurs femmes, ce qui est intéressant

à noter. Les médecins chinois ne sont pas, en effet, admis à examiner les femmes. Souvent ils ne les voient même pas. La malade passe son bras entre les rideaux du lit et l'homme de l'art peut lui tâter le pouls. C'est le seul moyen de diagnostic qui soit mis à sa disposition. Inutile de parler du traitement qui peut être institué dans ces conditions.

Dès les premiers mois de 1892, deux médecins français pratiquaient sur la fille d'un des premiers mandarins de Longtchéou une opération qui la délivrait d'une infirmité gênante (fistule anale). Cette marque de confiance, donnée par un haut fonctionnaire à des médecins étrangers, n'a pas été, certainement, sans influence sur l'esprit des habitants. Mes prédécesseurs, les docteurs GARNIER et SIMOND, ont eu une pratique très-active et les préventions semblent tomber peu à peu devant les résultats obtenus.

Depuis le mois de juin 1894 jusqu'à ce jour, j'ai donné mes soins à environ 500 malades de tous âges, de tous sexes et de toutes les classes de la société. De plus, contrairement aux coutumes et malgré les préjugés, j'ai été appelé à différentes reprises pour des accouchements. Toujours, il est vrai, c'était au dernier moment. Lorsqu'il n'y avait plus d'espoir, on allait chercher le "diable étranger." Mais, heureusement, le résultat de ces interventions a toujours été aussi satisfaisant que possible.

On parle, depuis quelque temps déjà, de la fondation d'un hôpital, qui serait établi aux frais des mandarins et des principaux négociants. La question des dépenses d'installation semble seule retarder pour le moment l'exécution de ce projet. Il faut espérer que ces difficultés ne seront pas insurmontables et qu'il deviendra bientôt possible de créer cet établissement qui, en rendant de grands services aux habitants, ne pourrait que faire connaître et apprécier d'avantage notre civilisation.

Je suis heureux, avant de quitter Longtchéou, d'exprimer ici mes sincères remercîments à messieurs les fonctionnaires des Douanes Impériales et du Consulat de France, ainsi qu'aux autorités chinoises, dont la bienveillance et la constante amabilité ont grandement facilité l'accomplissement de mon devoir professionnel.

II.—SPECIAL SERIES.